TESTS: Suzuki XN85 Turbo, Husqvarna 430CR, Maico Alpha 1 490, KTM 495 MC, Suzuki GS650GL, Fantic Trial 240 Professional

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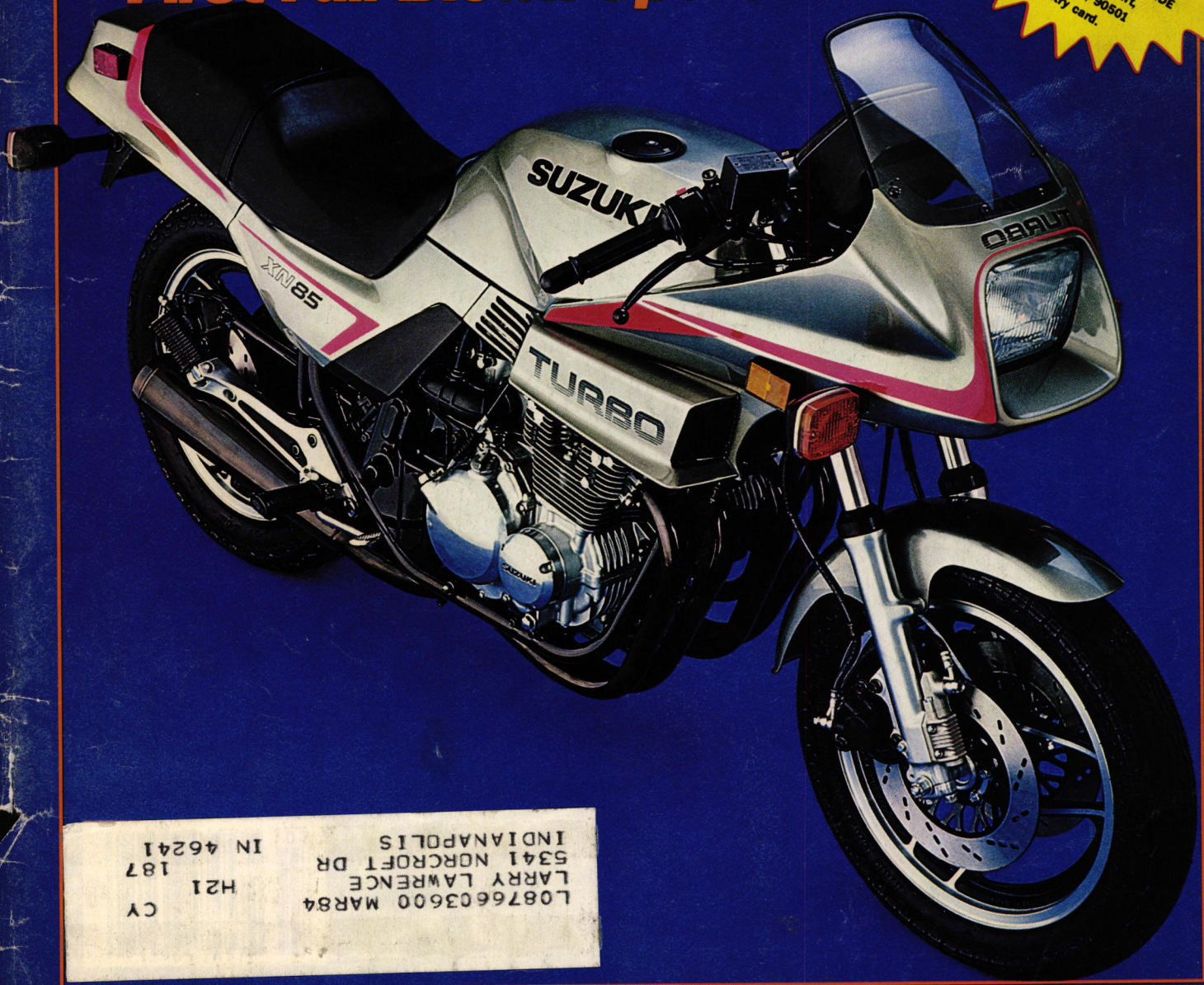

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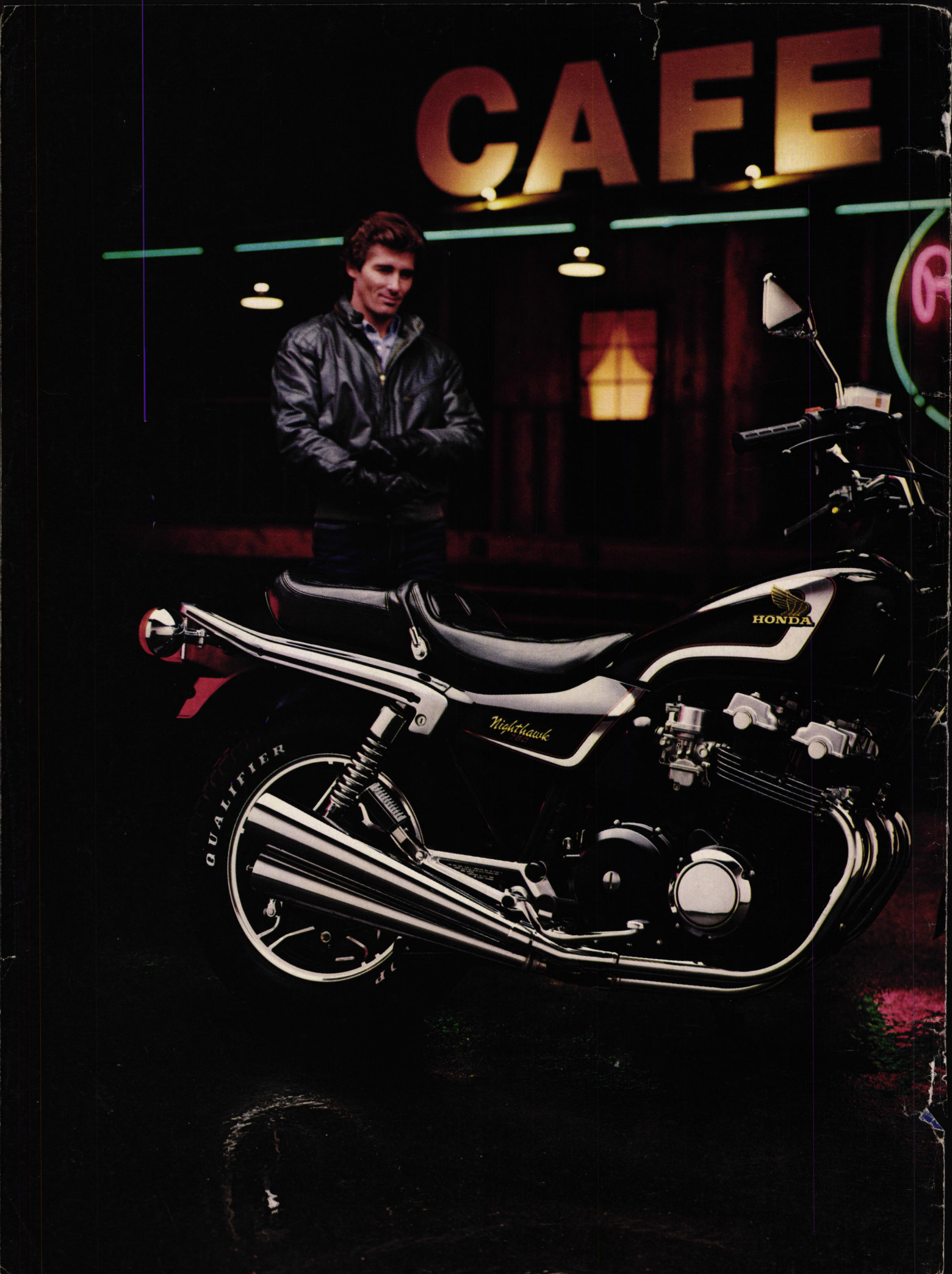
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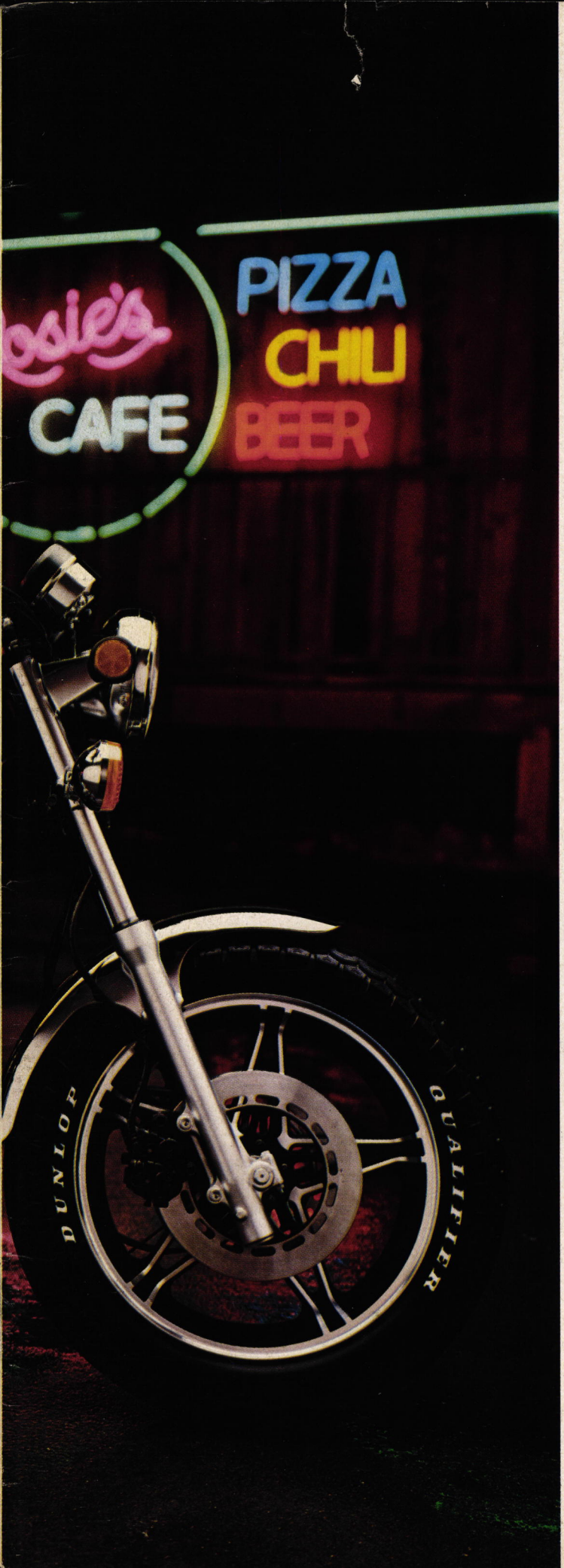

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OFF-ROAD

MAKE & MODEL	TYPE*	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	RAKE/TRAIL, DEGREES/INCHES	GEARS
Can-Am 125 Qualifier IV-'82	Enduro	March '82	Two-stroke	9.3/9.5	221	NA	6
Honda CR125R-'81	Motocross	April '81	Two-stroke	10.6/11.5	213	29.5/4.8	6
Honda CR250R-'82	Motocross	May '82	Two-stroke	11.4/12.0	228	27.5/4.3	5
Honda XR250R-'82	Enduro	December '81	Four-stroke	9.5/10.5	274	NA	5
Honda CR480R-'82	Motocross	April '82	Two-stroke	11.5/12.0	232	27.2/4.2	4
Honda XR200R-'81	Enduro	September '81	Four-stroke	9.0/10.2	228	28.4/4.9	6
Honda XR500R-'82	Enduro	November '81	Four-stroke	9.5/10.0	289	28.0/4.4	5
Husqvarna 250WR-'82	Enduro	June '82	Two-stroke	10.6/10.7	236	30.0/6.0	6
Husqvarna 430CR-'82	Motocross	January '82	Two-stroke	11.8/11.3	236	30.5/6.0	6
Italjet 350T-'82	Trials	December '81	Two-stroke	6.8/5.3	218	NA	6
Kawasaki KDX250-'81	Enduro	July '81	Two-stroke	9.9/11.0	248	28.0/4.7	6
Kawasaki KX250-'82	Motocross	May '82	Two-stroke	11.2/11.3	220	30.0/5.1	5
KTM 495MC-'82	Motocross	July '82	Two-stroke	11.3/12.1	247	27.5/4.8	5
Maico Alpha 1 490-'82	Motocross	July '82	Two-stroke	11.6/11.5	246	28.5/5.0	5
Suzuki RM125-'81	Motocross	June '81	Two-stroke	10.8/11.7	205	29.5/4.8	6
Suzuki RM250-'82	Motocross	May '82	Two-stroke	10.6/12.3	217	29.3/4.8	5
Suzuki PE250-'81	Enduro	October '81	Two-stroke	9.3/10.9	241	NA	6
Suzuki RM465-'82	Motocross	April '82	Two-stroke	10.8/12.0	234	29.3/4.8	4
Suzuki DR500-'82	Trail	November '81	Four-stroke	8.6/8.2	290	NA	5
Yamaha YZ250-'82	Motocross	May '82	Two-stroke	11.0/11.0	235	27.5/4.7	5
Yamaha IT465-'81	Enduro	May '81	Two-stroke	10.0/11.4	247	28.5/4.8	5
Yamaha YZ490-'82	Motocross	April '82	Two-stroke	11.3/12.8	238	28.5/4.7	4

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE, SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R65 LS-'82	April '82	2C/G	14.15/92.4	110	417	35-50	138
BMW R100RS-'81	May '81	2C/G	13.48/98.4	127	492	34-52	145
BMW R100RT-'82	May '82	2C/G	13.86/95.1	122	523	35-50	148
BMW R80 G/S-'81	November '81	2C/G	14.07/92.3	105	405	36-54	NA
H-D FXRS-'82	December '81	45-deg. 2D/F	13.92/93.1	109	594	40-47	124
Honda MB5-'82	January '82	1B/F	NA	57	187	NA	NA
Honda CB400T-'81	October '81	2A/F	NA	NA	397	52-61	NA
Honda CM400E-'81	April '81	2A/F	NA	NA	382	53-60	NA
H-D Tour Glide-'80	September '80	45-deg. 2D/F	15.58/83.9	108	785	35-44	161
Honda GL500 Interstate-'81	August '81	80-deg. 2E/G	14.88/86.4	96	517	39-53	140
Honda CX500 Turbo-'81	September '81	80-deg. 2E/G	NA	136	549	NA	NA
Honda CB750F-'81	June '81	4A/F	12.40/108.3	118	526	38-53	126
Honda V45 Sabre-'82	June '82	4D/G	12.37/106.8	128	511	29-47	149
Honda V45 Magna-'82	June '82	4D/G	12.34/105.9	129	507	30-46	124
Honda Nighthawk 750-'82	March '82	4A/F	12.74/103.8	131	543	36-49	128
Honda CB900F-'81	July '81	4A/F	12.21/111.1	141	547	41-47	130
Honda GL1100A Aspencade-'82	April '82	4C/G	13.23/98.8	139	724	40-50	145
Honda GL1100-'81	April '82	4C/G	12.60/106.5	139	606	41-49	NA
Honda GL1100I Interstate-'82	April '82	4C/G	13.30/99.5	139	697	40-50	NA
Honda CBX-'81	May '81	6A/F	12.01/113.9	136	646	23-40	130
Honda CB1100R-'81	November '81	4A/F	NA	155	518	31-48	NA
Kawasaki KZ305CSR-'81	December '81	2A/F	15.73/80.6	91	345	56-64	135
Kawasaki GPz550-'81	September '81	4A/F	12.97/101.7	119	449	52-63	149
Kawasaki KZ440D-'81	February '81	2A/H	14.59/89.1	107	383	56-64	135
Kawasaki KZ650CSR-'81	October '81	4A/F	NA	116	473	NA	NA
Kawasaki KZ750-'81	June '81	4A/F	12.43/108.2	128	471	38-60	128
Kawasaki KZ1000J-'81	February '81	4A/F	11.62/116.3	130	521	30-51	135
Kawasaki KZ1100A-'81	April '81	4A/G	11.62/117.6	142	559	38-44	NA
Kawasaki KZ1100 Spectre-'82	March '82	4A/G	11.96/110.4	142	553	36-44	132
Kawasaki GPz1100-'82	May '82	4A/F	11.33/119.4	137	534	35-48	127
Suzuki GS450S-'81	February '81	2A/F	NA	100	397	52-59	NA
Suzuki GS450T-'82	June '82	2A/F	NA	108	389	55-61	NA
Suzuki GS550M Katana-'82	January '82	4A/F	NA	103	420	41	NA
Suzuki GS650GL-'82	July '82	4A/G	NA	123	472	49-61	NA
Suzuki XN85 Turbo-'82	July '82	4A/F	NA	135	492	NA	NA
Suzuki GS750E-'82	January '82	4A/F	12.01/109.1	127	519	34-49	127
Suzuki GS1000S Katana-'81	December '81	4A/F	11.40/118.7	141	525	33-51	129
Suzuki GS1100E-'82	May '82	4A/F	11.20/119.3	141	530	37-49	132
Suzuki GS1100 Twin Turbo-'81	October '81	4A/F	NA	172	548	NA	NA
Yamaha SR500-'81	July '81	1B/F	NA	96	361	48-66	NA
Yamaha XJ550R Seca-'81	May '81	4A/F	12.99/101.7	121	418	44-55	119
Yamaha XJ550 Maxim-'81	July '81	4A/F	NA	NA	424	50-52	NA
Yamaha XJ550R Seca-'82	February '82	4A/F	NA	121	418	41-55	NA
Yamaha Seca 750-'81	June '81	4A/G	12.26/108.0	128	495	44-56	134
Yamaha 750 Virago-'82	January '82	75-deg. 2D/G	13.28/99.8	105	481	43-48	132
Yamaha XV920R-'82	February '82	75-deg. 2D/F	13.10/100.4	112	509	37-51	128
Yamaha 920 Virago-'82	February '82	75-deg. 2D/G	12.94/101.6	108	514	36-49	134

***A**-Transverse Vertical, **B**-Vertical, (single-cylinder only), **C**-Horizontally Opposed, **D**-Tandem Vee, **E**-Transverse Vee, /**F**-Chain Final Drive, /**G**-Shaft Final Drive, /**H**-Belt Final Drive

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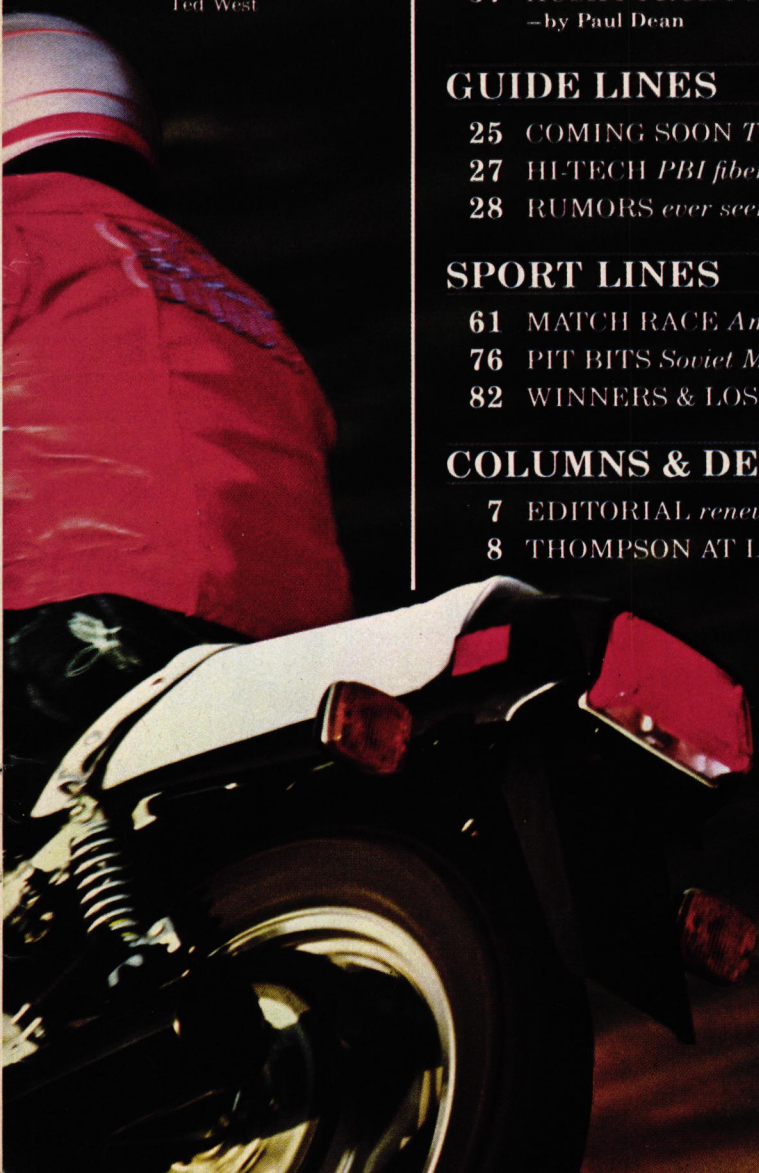

ON THE COVER:
What filled the frame of Chris Eastman's RB67 is Suzuki's next generation of sport hardware, the XN85. Full Floater rear suspension, 16-inch front wheel, anti-dive, sport fairing, clip-ons, rearsets and a four-into-one exhaust. Oh, and by the way, it also has a turbocharger.

Contributors
Patrick Behar, Chris Eastman, Don Fuller, Larry Gatz, Torrey Heeb, Vic Huber, Doug Jackson, Tom Riles, Mark Wagner, George Wegner

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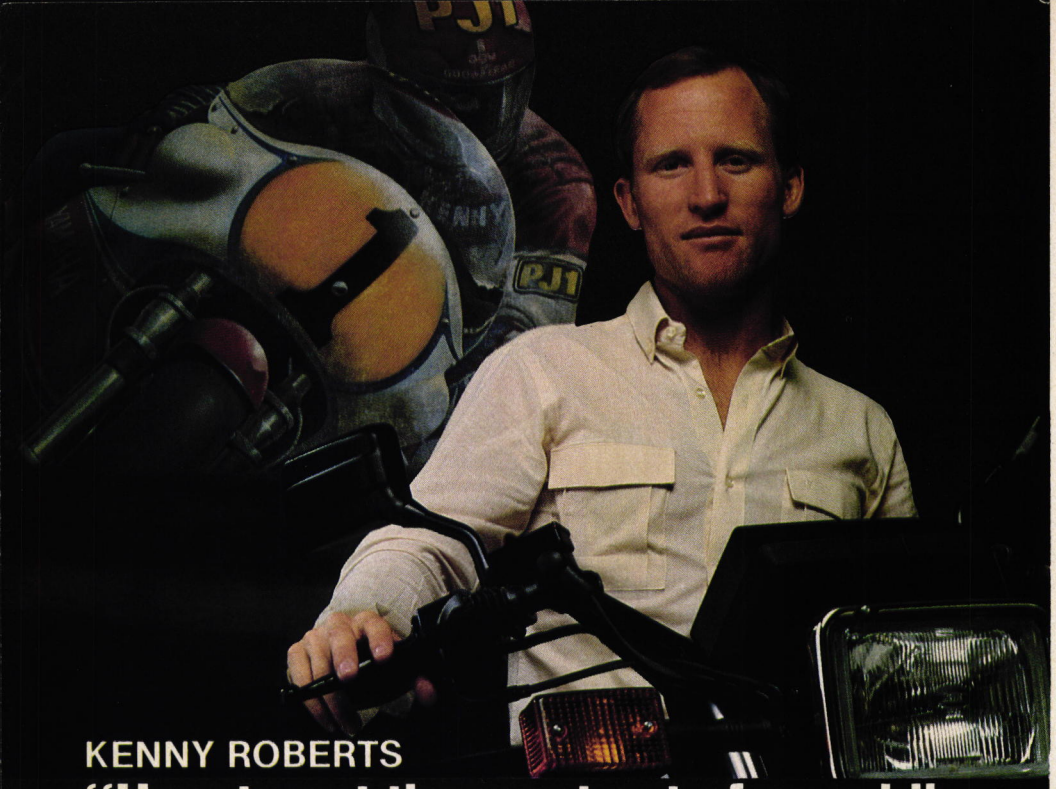

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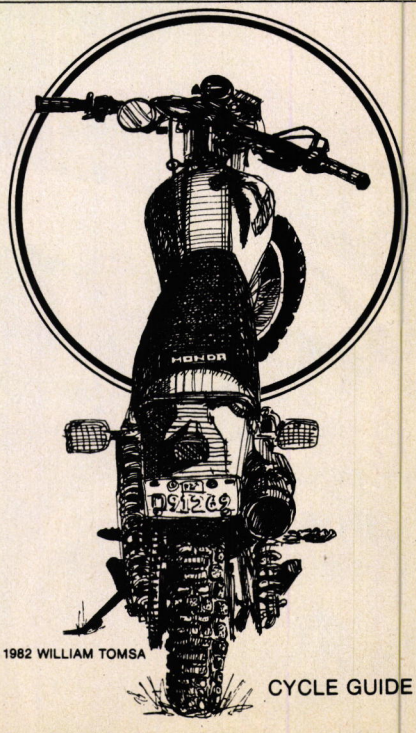

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Editorial

Renewed

But if it's too easy, where's the point?

• As you've probably just done, or shortly will do, I'm about to undergo a minor rite of passage in my motorcycling life. Within the next week I'm obliged to reapply for a permission slip to use the public pavement. A license renewal. And as it has been each time in the past, the process will be too easy.

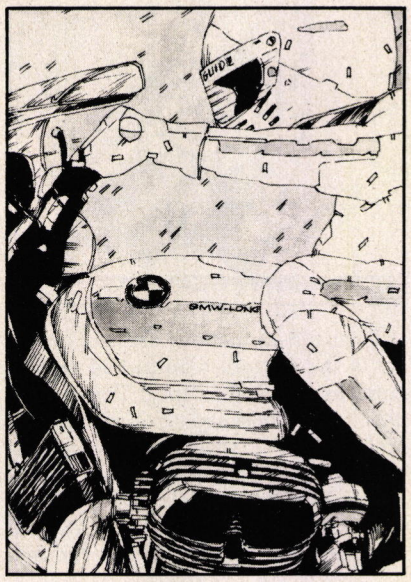
Being a credentialed, documented motorcyclist, you've already played out the scene at the motor vehicle department yourself. One studies the approved booklet—or maybe doesn't even bother—pays the fees and takes the test. Then there's the effort to overlook the pointless, poorly thought-out or simply flat-wrong answers that are expected—just feed back what the examiners want to hear. The flash of the mug-shot camera crystallizes the whole process, and you're out in less than two hours, free to hit the road for another couple of years.

All well and good. Another of life's little annoyances handled with a minimum of effort. But what was actually tested? In most licensing tests, expecially those for a motorcycle license, little more than the ability to stand in line is proven, which is hardly the point.

Or which shouldn't be the point. The purpose of such testing is to certify that someone either is or is not competent to manage a vehicle to some minimum set of standards. And testing procedure that fails to perform that function—or doesn't even approach it—is little more than a thinly disguised method of generating revenue. And if the collection of money is the central issue, why not scrap the whole testing process? Simply mail in a check and be done with it—without all the charade of a multiple-choice reaffirmation that you've still got the right stuff?

A popular thought, that, but one that ignores the very real need to apply some sort of performance criteria to the users of the road. But what's being applied—even in states that employ state-of-the-art testing procedures such as the Motorcycle Operator Skill Test—isn't nearly tough enough. And I'm here to tell you that, as unpopular and unlikely as such an action would be, the license-testing process should be validated by making it more difficult.

Once the wave of rejection that accompanies most attempts to insert Big Government even further into your life has passed, consider what's left. You'd still



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have the same lines, fees and camera-flash. Only what transpired in between them would be stretched to four hours or so—and made infinitely more valuable in the doing.

The little booklet that the motor vehicle department wants to make sure you've read would be stretched—say, to a full night's reading—and could be authored by legitimate motorcycling experts of long experience. People, riders, who know the subject by having lived it. You wouldn't simply be asked to name the best angle to cross railroad tracks in this revamped program, though you might be asked what conditions generate a high-side—and what to do afterward. Or you might be asked what the differing effects are of applying the front brake, rear brake or both as you approach the apex of a fast sweeper.

Then, after a run-through of practical theory, ideally conducted by a trained instructor who could explain, argue and track down your lines of reasoning, you'd have to demonstrate some knowledge of your bike. Nothing extreme or very technical, just knowing major problem areas and what to look for. You'd have to, for instance, be able to point out that a final-drive chain that's so loose as to be sawing the bike's swingarm in half is a condition that should be corrected. Or that brake fluid leaking from a master cylinder represents more than simply a cosmetic problem as it runs across the gas tank.

And following that, you would have to pass a skill test posing real-world problems. A perfect model might be Oklahoma's innovative program, in which a tester in a car follows the applicant motorcyclist and directs him through actual traffic by means of a helmet-mounted radio. In short, you'd have to prove that you could work your bike on terrain a little more arduous than low-speed pylon runs or figure-eights in a parking lot.

The payoff for the extra effort, annoyance and cost that such a testing process would entail would be multi-fold. First, even if you've been riding for a while, you just might pick up some useful information; the kind of know-how that's usually only gleaned from having made a mistake first—and having paid for it later. And second, riders who simply can't pass would learn how far they've got to go to become expert.

That's small comfort, perhaps, in the antiseptic climate of a license-testing booth, but there are also benefits that apply once you're out on the street. An NHTSA project, the Motorcycle Operator Licensing Plan, put the theory to test. Under the plan, motorcyclists were put through an extensive program that tested both knowledge and motorcycle skills. And the results were impressive: Riders who passed the tougher testing showed an accident rate 15 to 21 percent lower than riders who tested under conventional methods.

Applying such a project on a national basis likely would prove unworkable, though, since the costs of stringent, personalized license testing would be crushing. But in light of proposals to reduce federally assisted rider and driver education programs—on the basis that they encourage more drivers and riders—a testing process that not only tests but teaches should be of more than passing interest.

But the upshot of making a motorcyclist prove that he understands more than a smattering of the hows and whys of motorcycling isn't the most appealing part of the tougher licensing. See, I figure that most riders are far closer to understanding their machines and how they fit into traffic pattern than most drivers are. And it would be no small comfort to know that the drivers who share the road with me—and with you—had to work a little before they got *their* pavement permission slips as well.

—Larry Works

Thompson at Large

Leaned to the Limit

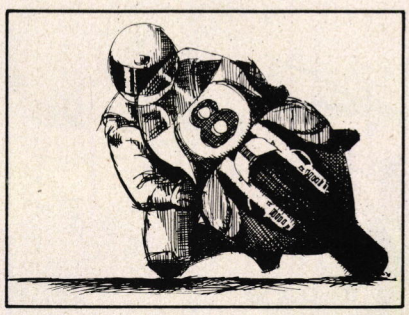
But what if your undercarriage, not your Tilt-O-Meter, defines it?

• The first time the Yamaha TD1C shifted itself in the middle of the fast bumps in Bottom Bend, I figured it was my fault. Maybe I'd nudged the shifter. But it kept happening—and Brands Hatch is too short, too mean a racetrack for things like unplanned gearchanges.

Lap after lap, I pitched the little seven-port Yammie down from Druids Bend to Bottom, tossed it down on its left side, and—*zang!* Another downshift. Finally I figured it out. The bike was leaned so far over that my line was putting the shifter on the ground just where a bump rose to move the lever. The next lap I tried to put my foot on the lever to stop it, but the leverage was too great. *Zang.* I tried fiddling with the lines, but lost ground. I tried hanging off. It was no good; I'd come, at last, after nearly 10 years of riding and four of roadracing, to see the other side of what the British call "scratching." To wit: A scarred footpeg or a scuffed fairing isn't just a battle decoration, mate; it's a signal that you are At The Limit.

That was in 1971, when ground clearance was the least of the TD-series problems, and when streetbikes—even the "big" 750s—had better ground clearance than they had tires or suspensions to use it properly. But the annoyance that too-low shifter caused me hasn't changed a bit; in fact, today's really big engines, newly sophisticated chassis and superbly sticky tires only exacerbate it.

Riders new to the game often can't believe so much concern with ground clearance is warranted. They see photos of motomag staffers trailing rooster-tails of sparks in some Mulholland Drive corner and they imagine some form of SoCal controlled substance is at work in the guy. Their attitude is understandable; after all, the best part of your first years on a bike is spent trying to control not just its actions but your own mental Tilt-O-Meter, which, being acutely concerned with your health, sounds the alarm frequently when you heel to unfamiliar lean angles. But because lean angles are what the fun of motorcylcing depends on, gradually your Tilt-O-Meter habituates itself to ever-greater bank angles. It takes awhile of course. After the first Honda CB750F model emerged as a sporting machine, a CYCLE GUIDE staffer who, along with the rest of the press corps, found the available angle-before-graunch of the bike far too low, discovered on a visit to the parking lot



© 1982 TOM HRUTKY

at Laguna Seca that not a single F-model out of the assembled horde had even so much as a nicked footpeg. That was in 1975; today, those same F-model owners probably crank their latest sportbikes onto the sidestand routinely. Their Tilt-O-Meters have been recalibrated.

Alas, our machinery has not. At least, not much of it has. And I object to that not because I'm a banzai streetracer looking for fame as the first man to drag an axle bolt, but because the idea of "artificially" limiting the maneuverability envelope of the motorcycles I ride irks me. Often, for instance, a situation presents itself in a corner in which the only safe thing to do is to *increase* lean angle; this can develop as a result of your own inattention (the radius of the corner tightened suddenly) or because of outside interference in your otherwise normal progress through the turn—as when a bus uses up your exit line, or a dog runs in front of you. Under these conditions, if you have successfully mastered the physics of riding well, you may wish to screw on the gas and lean some more. But what if you can't, because your undercarriage is in the way? You go only so far, and then, after the stands or the muffler ground, one of two things happens. First, your line is locked in, if you do not try for more lean. If you do, the second thing occurs: The rear wheel slowly is levered off the ground. Once the contact patches are disturbed, so is your control. The results of that are obvious—and unattractive.

The discomfort of the safety-inhibiting aspects of graunching hardware is matched by the irritation it produces in the sport-touring mode. Granted, no one rides on unfamiliar roads as hard as he does on his own favorite stretches of local twisty-bit, but still, with a clear day, a calm mind, dry pavement, good tires and no traffic, a good sport-touring bike inevitably is pushed to its maximum lean by an expert rider. If its maximum lean is an angle dictated by hardware rather than the rider's Tilt-O-Meter, skill, bravery or the bike's suspension and tires, said expert rider can't help but begin to think unkind thoughts about his mount. Usually they result in classified ads; either for rear-set footpegs or for sale of the bike.

We do not require roadracers to avert this problem; a roadracing motorcycle's hair-trigger steering and awkward riding position make for no more fun on real roads than knobbies and MX suspension would. We simply require motorcycles built with more confidence in us. Admittedly, with the stacks of product-liability suits staring them in the face, this plea to give us machines whose lean angles match their quarter-mile times might seem dangerously daring to the manufacturers, but in fact, they are on the right track right now anyway; all it takes is fine-tuning.

An example—and so far, the best—is the European XJ650 Yamaha. In an age of turbowonders, it is ho-hum; not even its shaft drive is interesting anymore, and its engine is a clone of the Maxim 650's. But as Dain Gingerelli put it after riding the bike, "you almost have to go off your gyro-rocker" to drag anything in a turn. Cautiously, ever so cautiously, we can see the outlines of more bikes like this one emerging; the smaller Katana Suzukis, the GPz Kawasakis, the sporting Hondas.

Can this all go too far? If you give a man a motorcycle whose pegs won't touch until his ears bleed, whose tires will stick until his handlebar clips a Bott's Dot, have you really given him something better? Or just something a little less mainstream-safe?

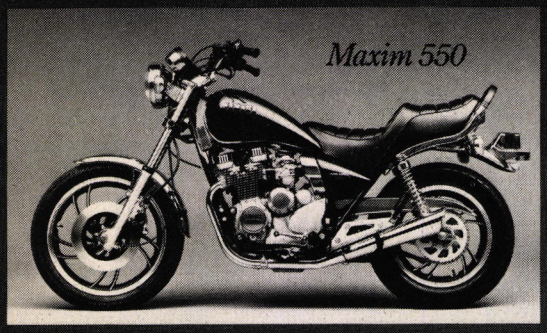
A friend of mine defines the dilemma best. He has three decades on bikes and rides superbly, swiftly, precisely. And yet he uses the muffler bolt on his BMW as a bank limiter because his personal Tilt-O-Meter has decided that for him, on that motorcycle, that much lean is enough, thank you. It's all perfectly understandable—except that this same man gets on *other* bikes and grinds hardware at far greater lean angles, those machines handling the loads not nearly so well as the Beemer, skating and sliding and showering sparks. He climbs off them grinning. For him, the problem is complicated.

For me, it is not; where lean angle is concerned, more is better. *Always.*

—Steve Thompson

WE FINALLY FOUND A WAY TO MAKE MAXIMS GO FASTER.

It wasn't easy. After all, the Maxim 550 and 650 are two of the best ways to shorten a city block. The 650 can turn a 12.6 quarter mile.* And the 550 goes like most 650's. Or a lot of 750's for that matter.



Of course a twist of the throttle isn't all these Maxims respond to. Both are designed with the kind of handling that makes straightening a curve in the road as effortless as shortening it.

Combine all that with the sleek, integrated Maxim styling, and you really couldn't ask for more.

But you could ask for less.

And, for a limited time, your Yamaha dealer has all kinds of Yamahas on sale. Including a 1982 Maxim 550 for the ridiculously low price of $2499** or a 1982 Maxim 650 for $2749.**

Which only goes to show, horsepower isn't the only way to make a motorcycle go faster.

Maxim 650

$2749**

THE YAMAHA BEST-SELLER SALE.

*Source: Cycle Guide. **Manufacturer's Suggested Retail Price. Actual prices set by dealers. Taxes, license, freight, options and other dealer charges extra. Prices may change without notice.

Techspeak

Learning The Ins And Outs Of Bearings

The fine art of being propane-wise, not pound-foolish.

• If common practice is any indication, the procedure for replacing bearings in motorcycle wheels, cases and the like is pretty uncomplicated. You put your favorite hammer in one hand and a suitably big drift in the other, then just beat the old bearing out and drive the new one in.

Right?

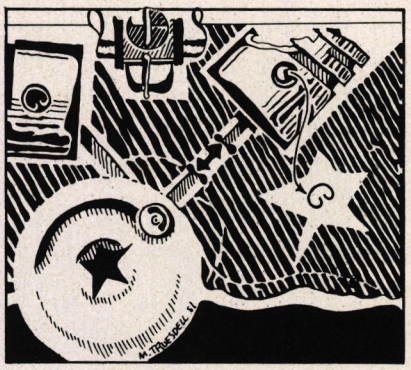
Er . . . not quite. Not unless you're trying to do for the new bearing what Custer did for the Seventh Cavalry.

You see, while brute force has innumerable useful applications, the replacement of things as delicate as bearings is not one of them. And although most do-it-yourselfers, as well as a disturbingly large number of shop mechanics, subscribe to the sledgehammer school of bearing installation, it's still the wrong way to get the job done. For not only do you risk damaging a bearing by hammering it into place, you're also likely to enlarge or distort the bearing-mount hole every time you force a bearing into or out of it.

That potential for damage exists because the bearing is an "interference fit" in its mounting hole. That's a technical way of saying that the bearing is larger (by a few thousandths) than the hole into which it must fit. Consequently, if you just drive a bearing in or out, you'll probably gouge the sides of the mounting hole (which usually is aluminum) or permanently distort it in some way. Worse yet, hammering a new bearing into place often causes the outer race to dig little slivers of aluminum out of the mounting hole, pieces that get trapped between the back side of the bearing and the bottom of the hole. And this accumulation can affect the operation of the mechanism by altering the end-play of whatever fits through the bearing.

Having an interference fit is a necessary evil, though, so that as the housing (the wheel hub or engine case or whatever the bearing fits into) heats up and thus expands, the bearing-mount hole (which also enlarges) won't get so big as to let the bearing work loose and shift around. This is especially important with bearings that mount directly in aluminum housings, since aluminum expands at a much greater rate than does a steel bearing race.

Ah, but therein lies the answer to the question of proper bearing R&R. For if you heat the housing prior to exchanging bearings, the mounting hole will expand enough to relax the interference fit. You then can use the aforementioned drift to



© 1982 MARTIN TRUESDELL

merely push the old bearing out of the hole by hand. At the very worst, you might have to tap (not beat) it out gently with a small hammer and drift. Installing the new bearing is even simpler. Since the bearing will be at room temperature, its outside diameter will be smaller than the heated hole's inside diameter; so the bearing can just be lowered all the way into the hole by hand. No tools and no force needed whatsoever. And this method works just as well with plain bushings as it does with rolling-element bearings.

You must, of course, heat the entire housing evenly, not just locally around the bearing mount; otherwise the housing could become permanently distorted. The ideal method is to put the housing in an oven and heat it to between 250 and 300 degrees Fahrenheit before attempting to remove or install a bearing. If, however, the only available oven is the one you cook your meals in—and if your family has not acquired a taste for Beef Bel-Ray or Quiche à la PJ1—you may want to forgo the bake-and-shake method and use a propane torch. Just remember to keep the flame moving and heat the entire housing evenly to prevent distortion. Or, if you're dealing with an exceptionally big housing, heat a large area all around the bearing and not just the mounting hole itself. Since you're trying to make the mount hole grow until it's bigger than the bearing race, don't play the flame directly on the bearing or it will expand as much as—or possibly more than—the hole.

An easy way to determine when everything has reached the minimum bearing R&R temperature is to deposit a small drop of water (or, if none is readily available, spit) near the mount-hole area as you're warming the housing. You'll know that the unit is sufficiently hot the first time the water sizzles and dances around before evaporating. And don't try to remove and replace the bearings all in the same operation. Heat the housing, poke the old bearings out, then let everything cool down so you can thoroughly clean the interior of the mounting hole. Heat the housing a second time to install the new bearing.

If you encounter a bearing that is reluctant to drop freely into its heated mounting hole, don't drag out your trusty hammer and start pounding. Just put the bearing in the freezer for about 10 minutes and *then* drop it into the heated hole. The dramatic reduction in the bearing's temperature will shrink its dimensions, thereby reducing the outside diameter of the outer race so it will drop into the hole.

There will be times when a bearing absolutely *must* be hammered or pried on or off; but if you apply that force discreetly, you won't end up causing more problems than you solve. For one thing, never put any side loads on the balls of a ball bearing or the rollers of a roller bearing while you're forcing it on or off. In other words, if the bearing is securely attached to another component by the inner race (like a crankshaft bearing or a steering bearing), hit or pry only on the inner race, not on the outer race. The same applies if the bearing is secured around its outer race (like an engine main bearing or wheel bearing); hit or pry only on the outer race, not on the inner race.

If, for some bizarre reason, you must remove the bearing by applying force to the wrong race, do not re-use the bearing. The resultant side loads transmit tremendous forces through the balls (or rollers), forces severe enough to put microscopic dents in the races where each ball is sitting at the time. Once the bearing is in use, the balls will roll over these dents, soon making comparable little dents in the balls, which in turn make more dents in the races, which make more dents in the balls, and so on until the bearing is worthless.

That's not so bad if all you're doing is taking off an old and worn-out bearing; but if it seems as though the only way to install a brand-new bearing is to pound or press forcefully on the wrong race, here's a word of advice: *don't*. You undoubtedly are doing something wrong. Not the least of which is ruining a perfectly good bearing. And maybe even the very expensive components that spin inside of it.

—Paul Dean

WE FINALLY FOUND A WAY TO MAKE A VIRAGO LOOK BETTER.

The 1982 Virago 750 has a lot going for it.

Take its sleek, V-twin engine, for example.

Yamaha technology has refined the V-twin into an almost perfect combination of narrowness, efficiency, reliability and power. The kind of relaxed locomotive power that only a classic V-twin can give you.

As even a casual glance at the Virago will tell you, that engine is far from everything.

There's the adjustable Monoshock rear suspension. Smooth shaft-drive. Rigid, lightweight monocoque frame.

And, of course, looks. Looks that are as radical a departure from the ordinary as the rest of the bike. Beautifully simple. Simply beautiful.

In fact, the Virago 750 has so much going for it, a lot of people have said we shouldn't change a thing.

So, naturally, we changed something.

We lowered the price. (Along with a lot of other prices on a lot of other Yamahas.)

Which means, that for a limited time, there is something more attractive than a Virago 750.

Its price tag. $2979.*

$2979*

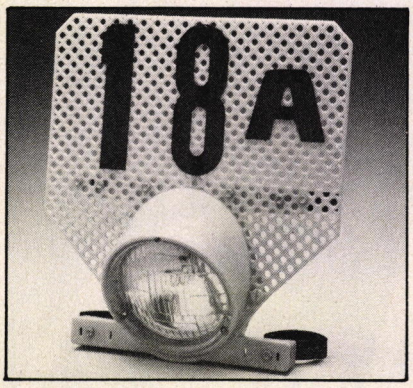
THE YAMAHA BEST-SELLER SALE.

*Manufacturer's Suggested Retail Price. Actual prices set by dealers. Taxes, license, freight, options and other dealer charges extra. Prices may change without notice.

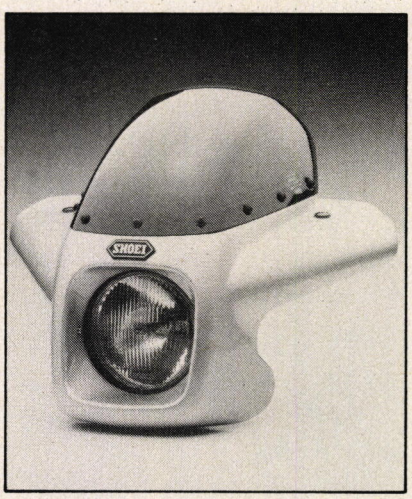
Motomart

Summertime cruise through the aftermarket aisles.

Fork Flip: Simons is building forks upside-down. The new UDX-60 motocross fork is claimed to have less unsprung and less overall weight than conventional forks, while offering increased rigidity and eliminating the extension below the axle. The UDX-60 features velocity-sensitive six-way adjustable damping, 12 inches of travel and carries a suggested retail price of $598. For more information, contact S.W. Simons Incorporated, Dept. CG, 2625 Miller Avenue, Mountain View, California 94040; (415) 948-3470.

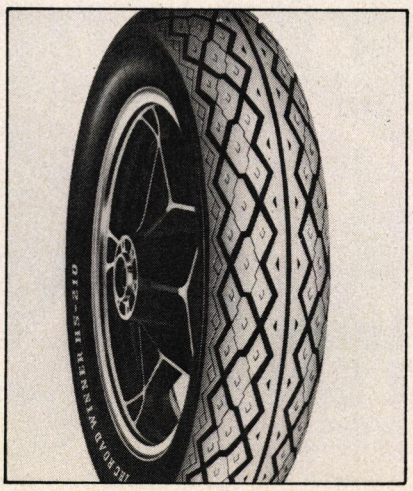


Night Sight: The Preston Petty Holeshot number plate is now available with a built-in headlight for enduro riders. The Holeshot Headlight features a 65-watt headlamp protected by a shatterproof Lexan lens, and it uses the same pattern of octagonal holes employed by Petty's motocross plate. These holes allow air to pass freely through the number plate to cool radiators or shock reservoirs, and also serve to mount Petty's plastic numbers. The Holeshot Headlight sells for $39.95, and is available through most dealerships, or from Preston Petty Products, Dept. CG, P.O. Box 4128, Scottsdale, Arizona 85261.

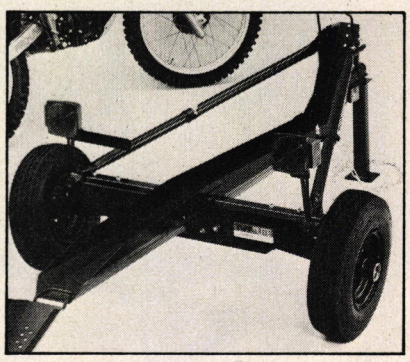


Shoei Biz: Shoei's latest windbreaker is the FM-3, a handlebar-mount fairing featuring compact European styling. The FM-3 is constructed of pressure-molded fiberglass and comes with a tinted windshield. $119.95 will purchase the new Shoei fairing in a choice of gloss Black or Super White. A Satin Silver finish also is available, for $134.95. If you can't find the FM-3 at a local dealership, contact Shoei Helmets, Dept. CG, 1717 Pontius Street, Los Angeles, California 90025.

Attire For Speed: Inoue Rubber Company's new HS-210 is a tire designed for high-speed machines. It's claimed to provide positive steering at speed, along with good wear characteristics. The HS-210 is H-rated (130 mph) and is available in sizes to fit most street bikes. You can obtain the tire through any dealer that carries IRC products. For more information, write IRC's U.S. office, Dept. CG, 14111 Kingsley Drive, Gardena, California 90249.



Posalok: The hooks used on many tie-down straps are plain bare-metal, and often gouge or scratch any surface they contact. To avoid that problem, both of the 3/8-inch hooks used on Posalok's Black Belt Tie-Downs are vinyl-coated—both truck and bike remain unscathed. Black Belts also feature a 4500-pound load capacity and a gradual-release chrome-plated steel buckle. Posalok Black Belts retail for $14.95 and are available at most motorcycle dealers, or you can contact Posalok directly at Posa Enterprises, Dept. CG, 7530 East Jackson Street, Paramount, California 90723



TUFF 'N Lite Trailer: Unique Functional Products has a lightweight way of getting your favorite plaything—two- or three-wheeled—to your favorite playground. It's the new Tuff 'N Lite trailer which weighs 135 pounds, and can haul up to 725 pounds. Its features include two-wheel-independent suspension and adjustable tongue-height to enable the trailer to ride level regardless of the height of the hitch on your car or truck. Retail price is $369 for the motorcycle-hauling version, or $389 for the ATV model. Both come with a two-year warranty. More information can be yours by writing Unique Functional Products, Dept. CG, 135 Sunshine Lane, San Marcos, California 92069.

Continued

WE FINALLY FOUND A WAY TO MAKE THE VISION MORE EXHILARATING.

Cycle World Magazine, recently said our 1982 Vision was, and we quote, "...equal to the fastest 550's for speed, superior to anything in its class for handling, and all the time it manages to be as easy to ride and as comfortable as any mid-size machine."

How do you make a motorcycle more exciting than that?

Simple.

You lower the price.

Right now, your participating Yamaha dealer is dealing on all kinds of Yamahas, including the incredible bike you see here, for the incredible price you see here.

To get technical, what you're looking at is a shaft-driven, 552cc, DOHC, dual-exhaust, water-cooled V-twin with four valves per cylinder and a 9500 rpm red-line.

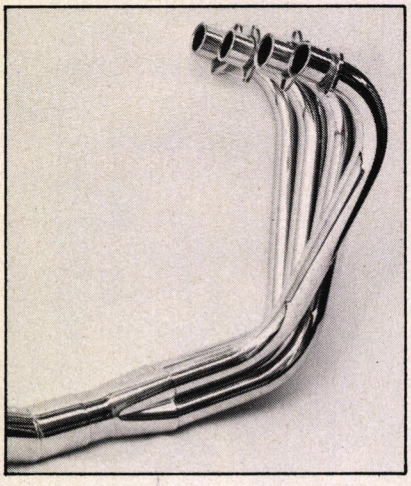
To get emotional, what you're looking at is no run-of-the-mill road-burner. But the kind of motorcycle that gives you that tingly feeling in the back of your knees when you pitch it into a turn, lean it over and roll on the throttle.

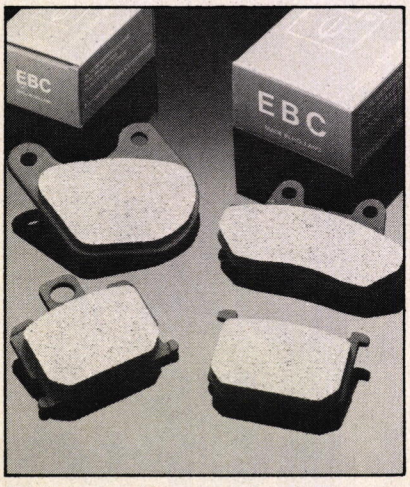
And to get practical, what you're looking at is a hell of a deal.

THE YAMAHA BEST-SELLER SALE.

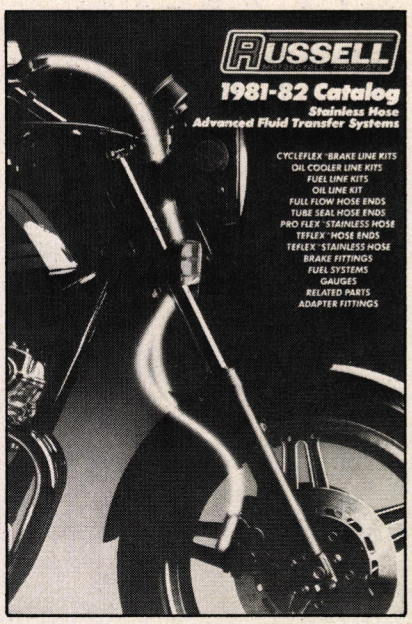
*Manufacturer's Suggested Retail Price. Actual prices set by dealers. Taxes, license, freight, options and other dealer charges extra. Prices may change without notice.

Wiseco Pipes: The piston people at Wiseco have jumped into the pipe market with a new line of four-into-one exhaust systems. Wiseco claims the new systems offer greater performance than stock systems at all rpm ranges, with the added benefit of improved ground clearance. The Wiseco pipes are also designed for easy oil-filter access. Wiseco has an exhaust system for most late-model Kawasaki, Suzuki and Honda fours. For more information, write to Wiseco Piston Incorporated, Dept. CG, 7210 Industrial Park Boulevard, Mentor, Ohio 44060, or call (216) 951-6600.





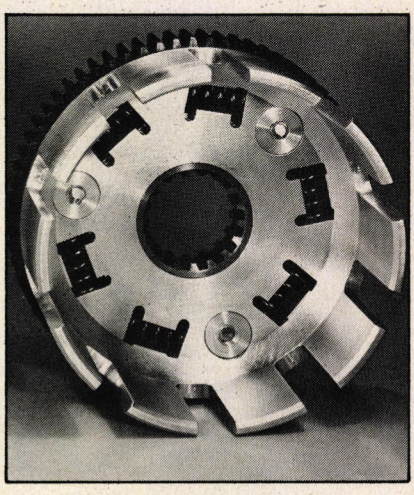
A Fair Brake: If you can't handle the price of original-equipment brake pads, but your boot soles just aren't getting the job done, European Brake Corporation of Holland can help. EBC brake pads cost $15 to $18 per set, and are made of a fade-resistant material developed by Wil Hartog, among others, in European Grand-Prix racing. The pads are claimed to improve brake efficiency by 20 to 24 percent. There is a set of EBC brake pads available for virtually every bike on the road. To learn more contact Freeman America Corporation, Dept. CG, P.O. Box 561, DuBois, Pennsylvania 15801; (814) 371-0770.

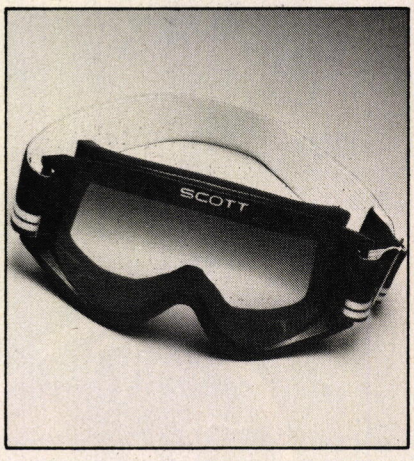


Russell's Line Up: Russell Motorcycle Products carries a complete line of lines. Brake lines, oil lines, fuel lines and all the fittings and adapters to fit and adapt them to your bike are covered in the newest Russell Catalog. The catalog can be yours for $3.00 if you write to Russell Motorcycle Products, Dept. CG, 20420 South Susana Road, Carson, California 90745. The telephone number is (213) 639-7151.

Coverup: Sun and rain can turn an expensive, new-looking fairing into a cheap, old-looking one in short order. To forstall this process, Dow Canvis is introducing its new X-20 fairing cover. The X-20 cover is constructed of 250 Denier Dacron Polyester, and will fit over most popular fairings. The cover also extends to protect the motorcycle's tank and seat. $39.95 will buy the X-20, complete with its Take-A-Long storage pouch. For more information, write Dow Canvis Products, Dept. CG, 4230 Clipper Drive, Manitowoc, Wisconsin 54220.

Thumper Clutch: Four-stroke fans who have built killer Honda 500s may soon discover that the stock clutch-basket can't handle the strain of racing. White Brothers Cycle Specialties has developed an accessory basket, constructed of 7075-T6 aircraft aluminum, that is designed to stand up to racing demands—no matter how strong Big-Thump is. It weighs a claimed two-ounces more than stock, and will fit all '79 through '82 XR and XL 500Rs. The basket is available for $140 from White Brothers, Dept. CG, 11750 Seaboard Circle, Stanton, California 90680; (714) 895-1991.





Making The Grade: Did you ever start a race wearing a goggle with a smoked lens, then halfway through the moto realize you can't see where you're going because the clouds have rolled in? Or start off with a clear lens, only to have the sun drop so low that the glare becomes blinding? To combat these problems, Scott USA has introduced the Model 90 goggle. This goggle comes with a gradient Lexan lens; the top of the lens has a heavy tint that gradually gets lighter toward the bottom. The Model 90 goggle retails for $24.95, and the lens, which will fit any Series R Scott goggle, is offered separately for $8.50. Both are available through most dealers.

You Only Get One Chance To Make A First Impression.

The New Model 32 by Simpson,
With "Quik-Latch" Shield Closure System
For One Finger Operation.

Simpson Sports, 22630 S. Normandie Ave., Torrance, CA 90502 (213) 320-2204

SIMPSON

TURBOSPORT FILE, ENTRY ONE:

Suzuki Turbo XN85

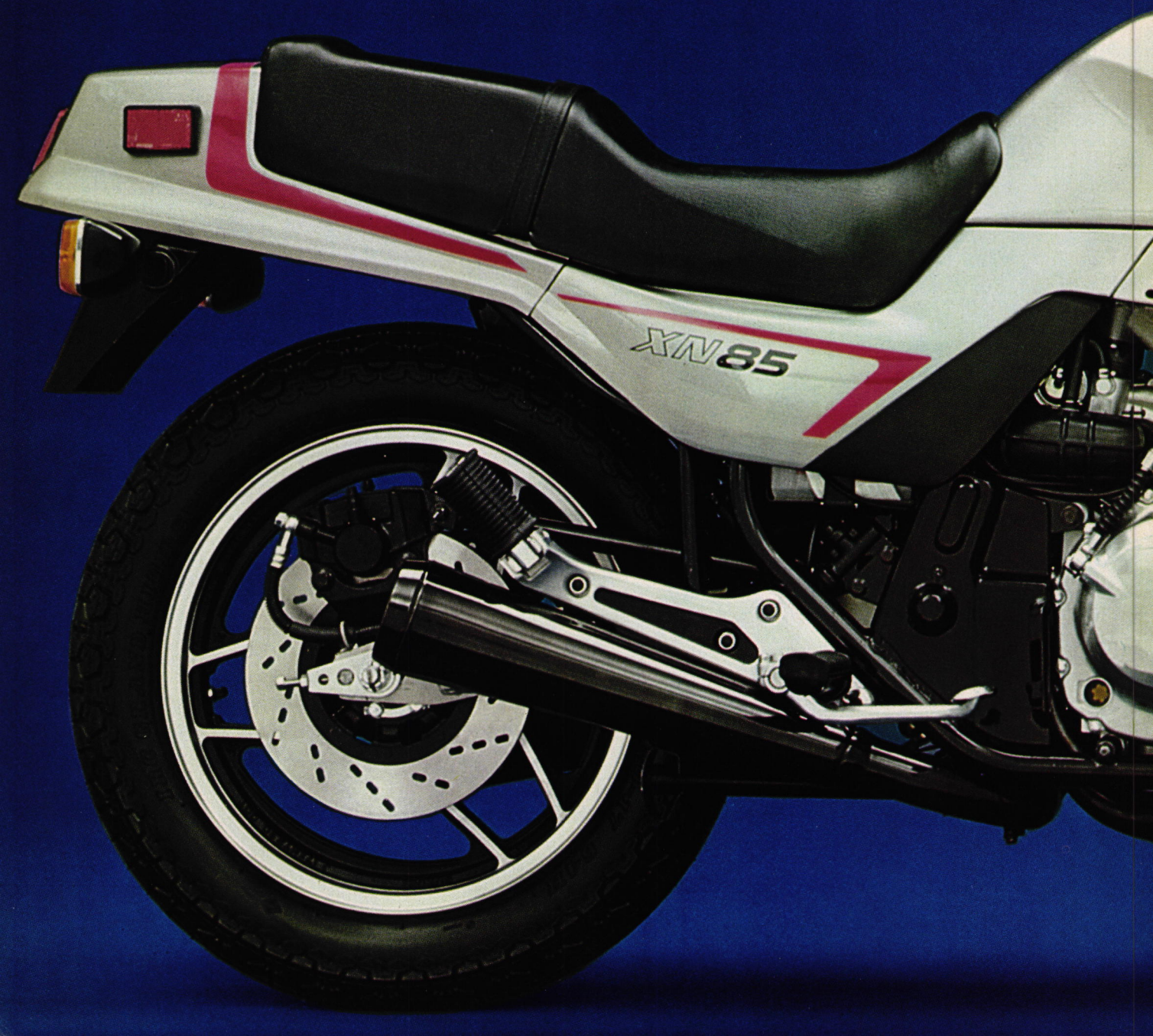
Suzuki runs up its corporate colors on the sportiest flagship in the turbo fleet.

BY DAVID DEWHURST

Turbocharged two-wheelers are more than just the spearhead of a new generation of motorcycles; they've become important corporate showcases, highly visible confirmation of each manufacturer's philosophies of motorcycle design.

That's why, rather than being just another new motorcycle, Honda's CX500 Turbo is a complex monument to that company's engineering ability, and why the XJ650 Turbo reaffirms Yamaha's belief in mechanical simplicity coupled with bold styling. And in keeping with Kawasaki's musclebike image, its soon-to-be-launched 750 Turbo was designed from the outset to be "the fastest motorcycle."

With so many corporate stereotypes being reinforced by turbos, it's hardly surprising that Suzuki's prototype XN85 confirms the Hamamatsu factory's devotion to mechanically simple, yet highly efficient, sport motorcycles. Suzuki's Turbo doesn't resort to the mechanical complexity of the Honda, the flash of the Yamaha or the sheer speed of the Kawasaki. No, as always, Suzuki's product is better judged on a winding road than on a showroom floor. That's why the XN85 doesn't dazzle you with computer monitoring systems or the heavy full fairing common to all its com-



petitors. Such appendages aren't essential to a sportbike, and the XN85 *is* a sportbike, rather than just a corporate flagship built to display turbo technology. You only need look at the clip-on bars, humped seat and rearset pegs for confirmation of the XN's sportbike role. And if you need more proof, just look at the Full Floater rear suspension and the exclusive 16-inch front wheel developed on the factory racing bikes.

Not that Suzuki's Turbo owes everything to race technology. In fact, the XN85 engine—the 85 refers to the bike's claimed maximum horsepower output—is based loosely on the production eight-valve GS650E motor. Externally the motor looks almost identical to the 650E's, with only Ram Air ducts added to cool the turbomotor's head. The only GS parts remaining *inside* the familiar cases, however, are the stock 62mm pistons and wrist pins. Everything else is new, including stronger conrods to carry the tremendous loads produced by turbocharging. The rod itself is stronger in its midsection and flares to provide a much larger bearing area to support the wrist pin during the firing stroke.

The intense heat generated by the combustion of a pressurized charge normally would be enough to melt stock pistons, so

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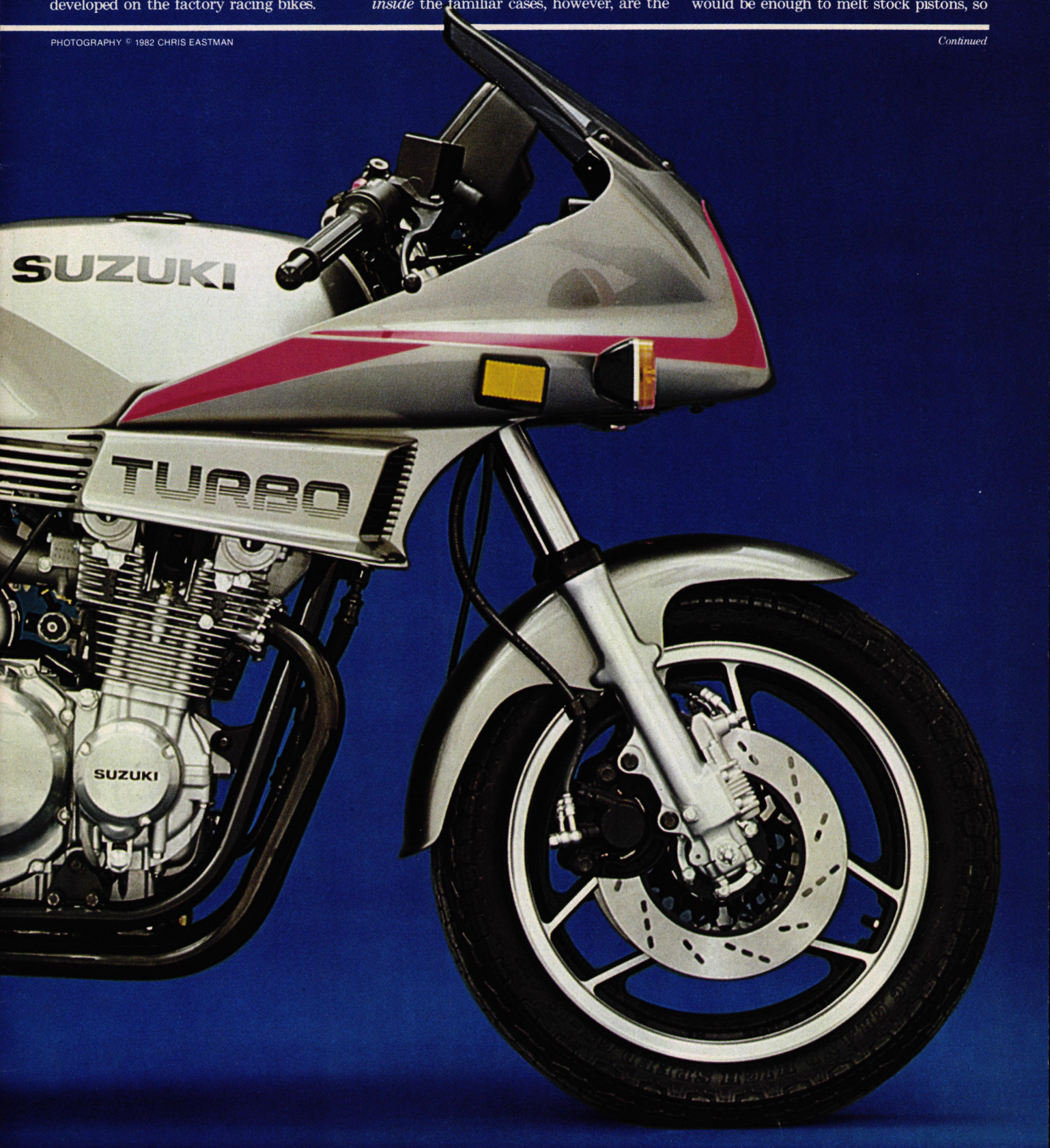
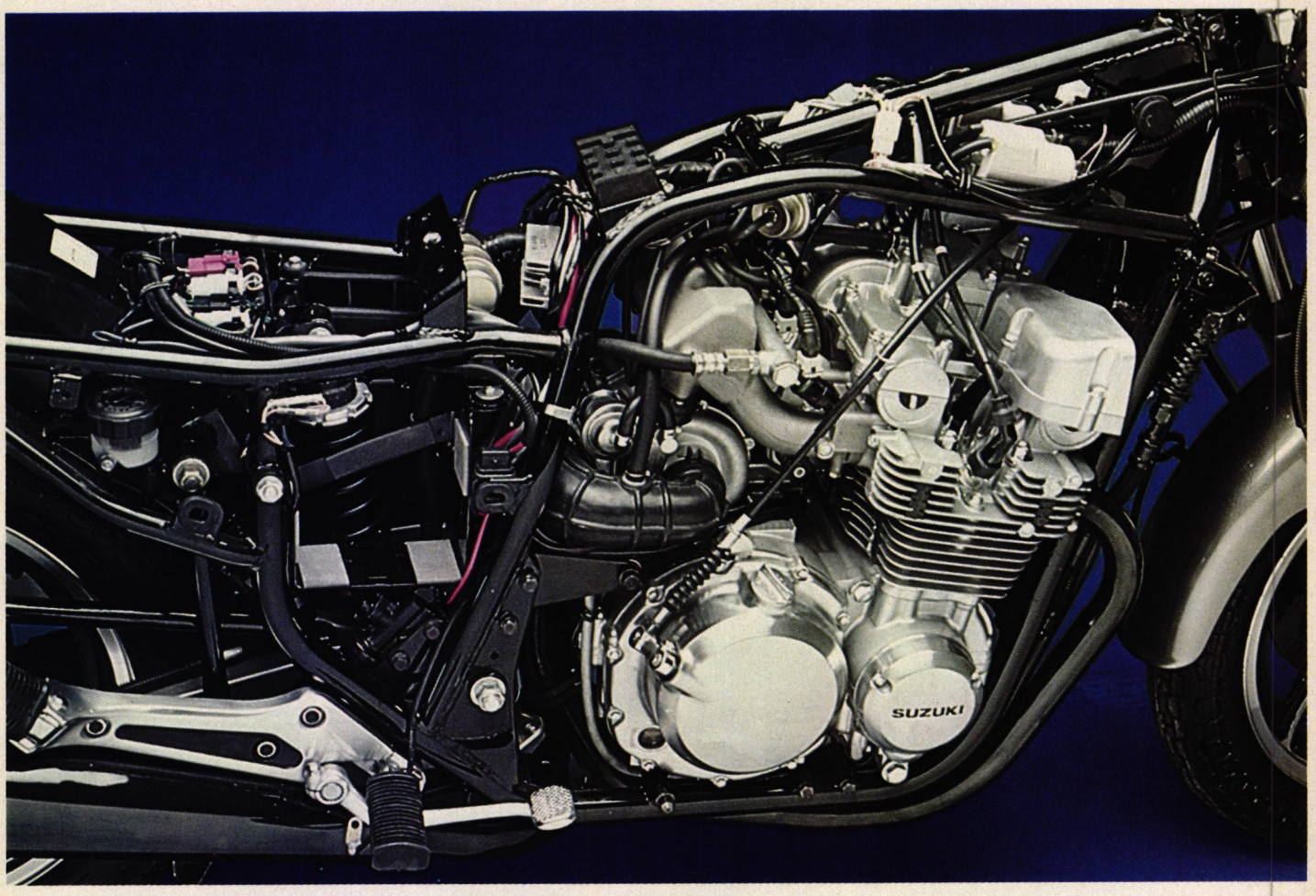
Continued





The naked Turbo struts its boosted, injected and Full Floating stuff

A look under the armor of Suzuki's newest warrior.

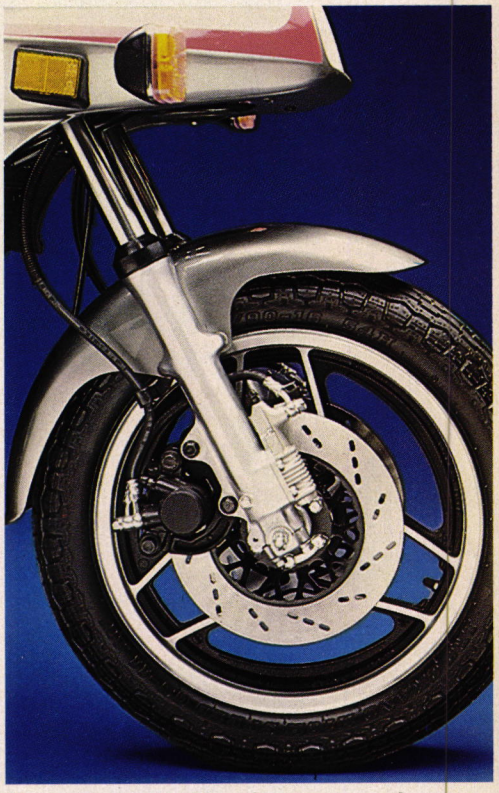
Suzuki developed a special oiling system to cool them. Drilled passageways route filtered oil to small spray nozzles that point up each cylinder from the crankcase. As each piston rushes down the cylinder, a jet of oil is sprayed directly at the underside of its crown to carry away some of that combustion heat. Suzuki engineers realized that during hours of no-boost operation, when combustion temperatures are much lower, the pistons might be overcooled, so a pressure-relief valve insures that oil is sprayed only at higher engine rpm when oil pressure exceeds 28 psi.

Pistons weren't the only parts to get hot under pressure, and Suzuki found it necessary to extend its elaborate oiling system to reduce cylinder head temperatures by a claimed 20 percent. Small passages route oil around the seats of each of the four 27mm exhaust valves. Additional oil also flows onto the Stellite-coated valve stems and the valve springs from extra galleries in the upper half of the cylinder head.

Because the XN85 already needed a high-pressure oiling system to cool and lubricate its IHI turbo, Suzuki engineers replaced the E-model's roller-bearing crank with a plain-bearing bottom-end that is less expensive to repair and that also requires high-pressure lubrication. The crank is similar to the one used in the shaft-driven GS650G, but has 2mm larger 36mm throws and stock-sized mains.

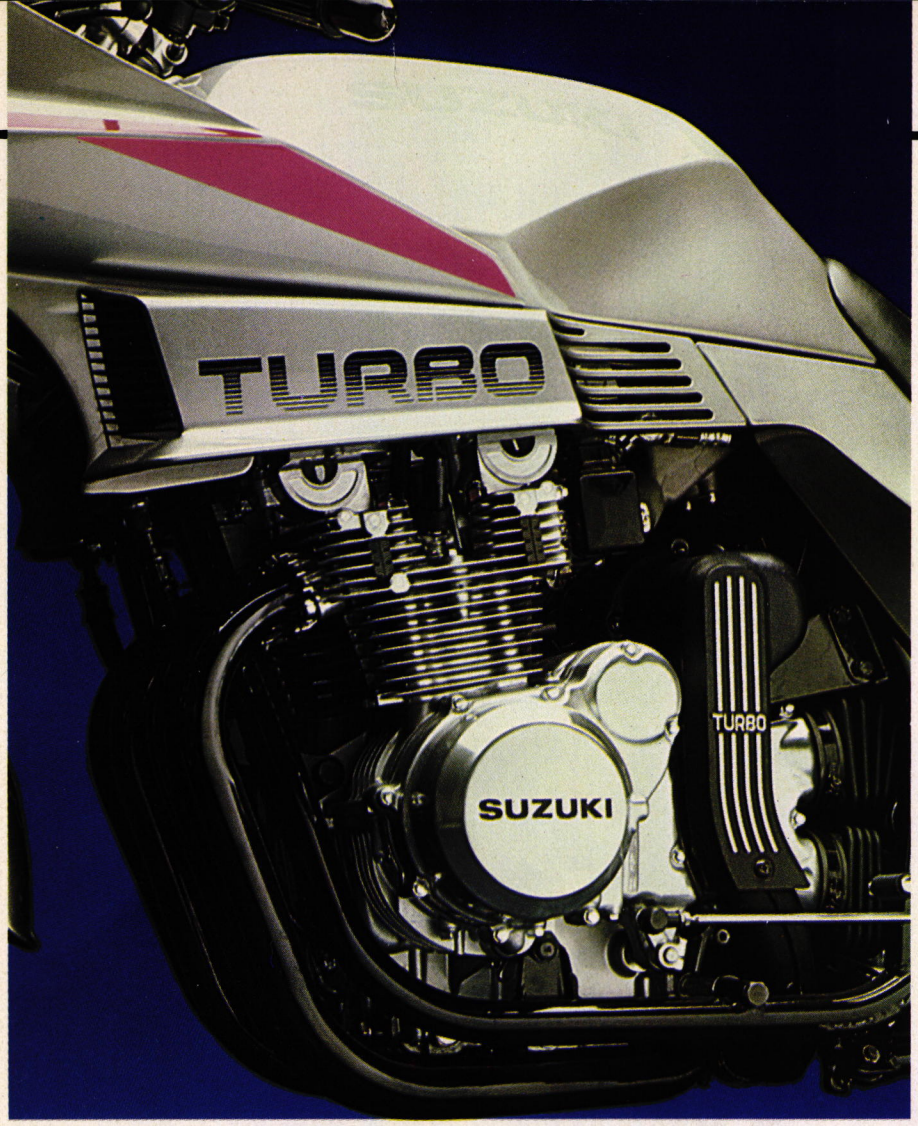
The XN85's message is clear: Turbocharging is not the only message

With such an increased mechanical capacity, the transverse-four motor is capable of taking considerable pressure from the IHI turbo. Suzuki uses the same basic RHB 51B unit employed on the Honda Turbo, but set up to deliver just 10.6 pounds of boost as opposed to the CX's 19 pounds. The pressure difference is achieved by using a different blade design. And by mounting the turbo behind the bank of cyl-



16-inch front wheel breaks new ground

A tiny turner for less gyro effect.



Ram Air ducts are the major external clue that the XN engine is more than a GS650

But inside the cases, only pistons and wrist pins are the same.

inders where a normal block of carburetors would be found, Suzuki kept the XN85 as compact as possible, as well as providing a short inlet tract to minimize turbo lag. A plenum chamber between the turbo and motor further improved intake efficiency, and its location above the turbo—the chamber is located at the highest point in an inverted U-shaped intake system—prevented blowback of fuel into the compressor during non-pressurized operation.

Suzuki engineers also discovered considerable benefits from a special under-engine exhaust collector design. Exhaust gases from all four cylinders are joined into a single collector pipe just ahead of the IHI's turbine. From the first joining of exhaust pipes under the front of the engine, exhaust from cylinders two and three is confined to a small-diameter pipe which runs inside a larger pipe that confines the gases from cylinders one and four. Suzuki claims that this concentric-pipe design increases the exhaust gas speed to reduce turbo lag.

Sportbike thinking dictated the use of a lightweight single muffler, rather than splitting exhaust gases into a two-pipe system like those used on the other turbo models. And that same thinking was responsible for Suzuki designing the turbo to deliver maximum boost at a relatively low 7500 rpm. As evidenced by a torque curve that's almost flat from that peak level all the way to the motor's 10,000-rpm redline, the engineers also wanted to have a broad and usable powerband, even at the expense of peak horsepower.

You won't be able to do much to alter the engine's power characteristics because the turbo wastegate is non-adjustable and set to vent anything above 10.6 pounds of boost. Should boost accidentally exceed 12.7 pounds, or if engine speed increases above 10,500 rpm, the computer-controlled ignition will automatically retard far enough to prevent engine damage.

Two micro-computers, stacked on top of each other in the tail section of the XN85's seat, work together to control ignition timing and the NipponDenso fuel injection system. Suzuki uses a more complex version of the L-Jetronic injection system used on last year's Kawasaki GPz1100, including an airflow meter upstream of the turbo, pressure sensors for the wastegate and fuel pump and an engine temperature sensor. But Suzuki's system goes one step further by also measuring both crankshaft rotation and throttle position. The latter helps the computer alter ignition timing at low rpm as well as improving fuel mileage by cutting the fuel supply when the throttle is closed and the engine is turning faster than 3000 rpm. (Kawasaki's new DFI also cuts fuel when the throttle is closed above a predetermined engine speed.)

Suzuki also found that at higher engine speeds the XN85 didn't need an injection of fuel on every stroke. Greater efficiency was achieved using the crankshaft sensor to inject fuel on alternate strokes. But this alternate-stroke fuel supply was not sufficient to provide consistant carburetion at low engine speeds. Eventually it was found necessary to fire the injectors on every revolution at low speed and on alternate strokes at higher rpm, and let the computer perform the complex juggling act.

The designers also point to two other claimed advantages of their injection system. For a start, the fuel pump delivers a higher line pressure than those on both Honda's and Kawasaki's turbos, and that, claims Suzuki, produces better atomization of fuel in the inlet tract. The fuel injectors, although similar to those on the CX500 Turbo, are claimed to open and close more quickly than any others, allowing more precise control of the fuel mixture.

All this precise control and pressurization is claimed to produce a healthy 56.4 lbs/ft of torque at 7500 rpm. That's an enormous increase over the 650E, and enough to push the stock gearbox beyond its design limit. So the engineers altered the ratio of the helical-gear primary drive so that the gearbox in the XN85 spins more quickly, reducing the amount of torque each gear has to transmit. But by juggling final-drive ratios and rear tire circumference, the XN and 650E share the same overall gearing, which, coupled with the turbo's 10,000-rpm redline (500 rpm higher than on a 650E) results in a theoretical top speed of 135 mph—a speed the more powerful Turbo is far more likely to attain.

All that power and speed alone doesn't make the Turbo a sportbike. It takes an excellent chassis to make a complete sporting package, and Suzuki's been doing that on and off the track for years. And the XN85 draws heavily on Suzuki's roadrace experience for its sportbike agility. The most obvious racebike trickledown is Full Floater

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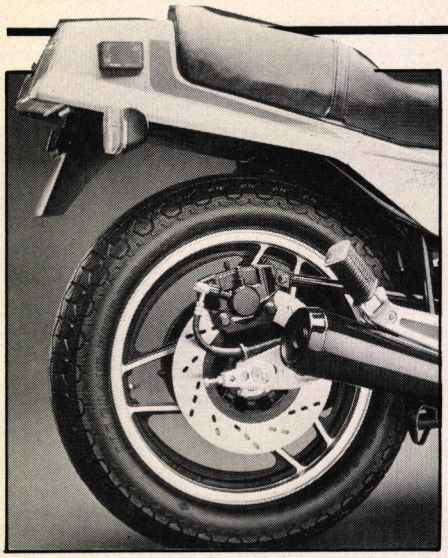
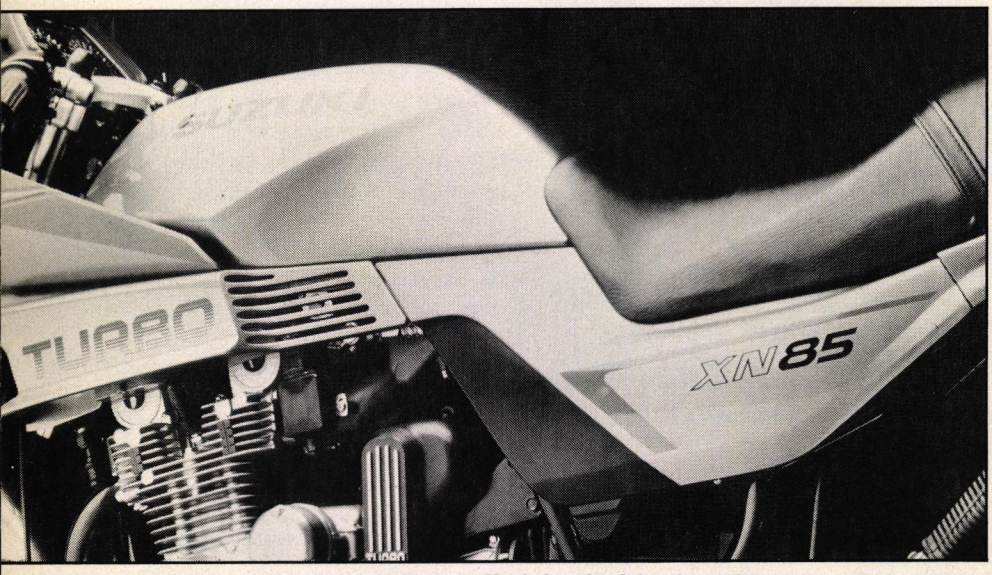


Handling is what this Turbo is about

The special-design Michelins help.

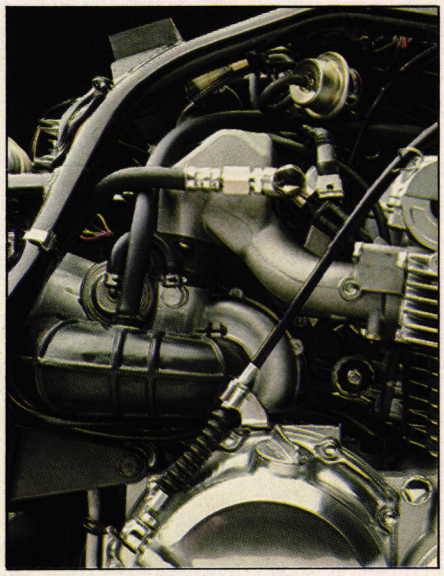
Accommodations inside the sport fairing appear somewhat Spartan by turbo standards

When you're on a diet to lose weight, all the extras must go.



Suzuki XN85's lines are clearly Katana/Muth-inspired, but less abrupt

A softer look lends grace at speed—or standing still.



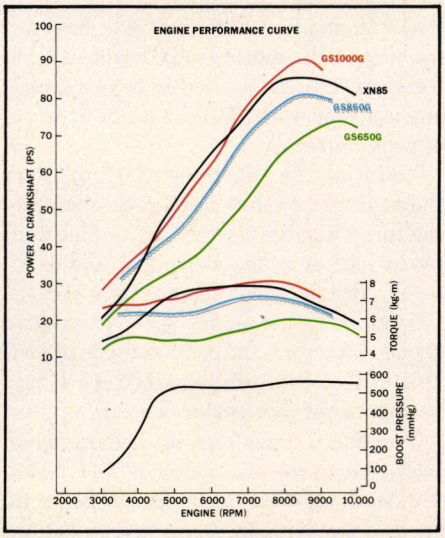
IHI turbine nestled deep in the Suzuki

Boosting Suzuki into the turbo age.

Suzuki invents a new category—turbosport

suspension, pioneered in motocross and then used to win last year's 500cc world roadrace championship. In this first street-bike application, the system is almost identical to those used on the RM motocrossers. The aluminum swingarm is linked by two vertical rods and a boxed-steel bell crank to a vertically mounted shock that also has its lower end bolted to the swingarm. The prototype shock has a screw-type preload adjuster and no damping adjustments, but production versions might use a cam-type preload adjuster.

The front fork definitely will have a cam-type preload adjuster at the top of each



Power output relative to other Suzukis

Performance in the one-liter league.

stanchion tube,like many other European-bound Suzukis, rather than the air caps used on most bikes on the American market. The remainder of the fork is a more softly sprung version of the one used on the GS1000 Katana, including a hydraulic anti-dive unit operated by the twin disc brakes. But what's really different about the front end is Suzuki's pioneering use of a 16-inch front wheel.

Formerly used exclusively on its RG500 roadracers, the three-inch-smaller-diameter rim is claimed to produce less gyroscopic effect than larger wheels. The gyroscopic effect is what tries to prevent the wheel from being turned from side to side or angled over at high speed. By reducing this effect, the wheel—and therefore the bike—can be more easily flicked from side to side in a turn, and that's what promises

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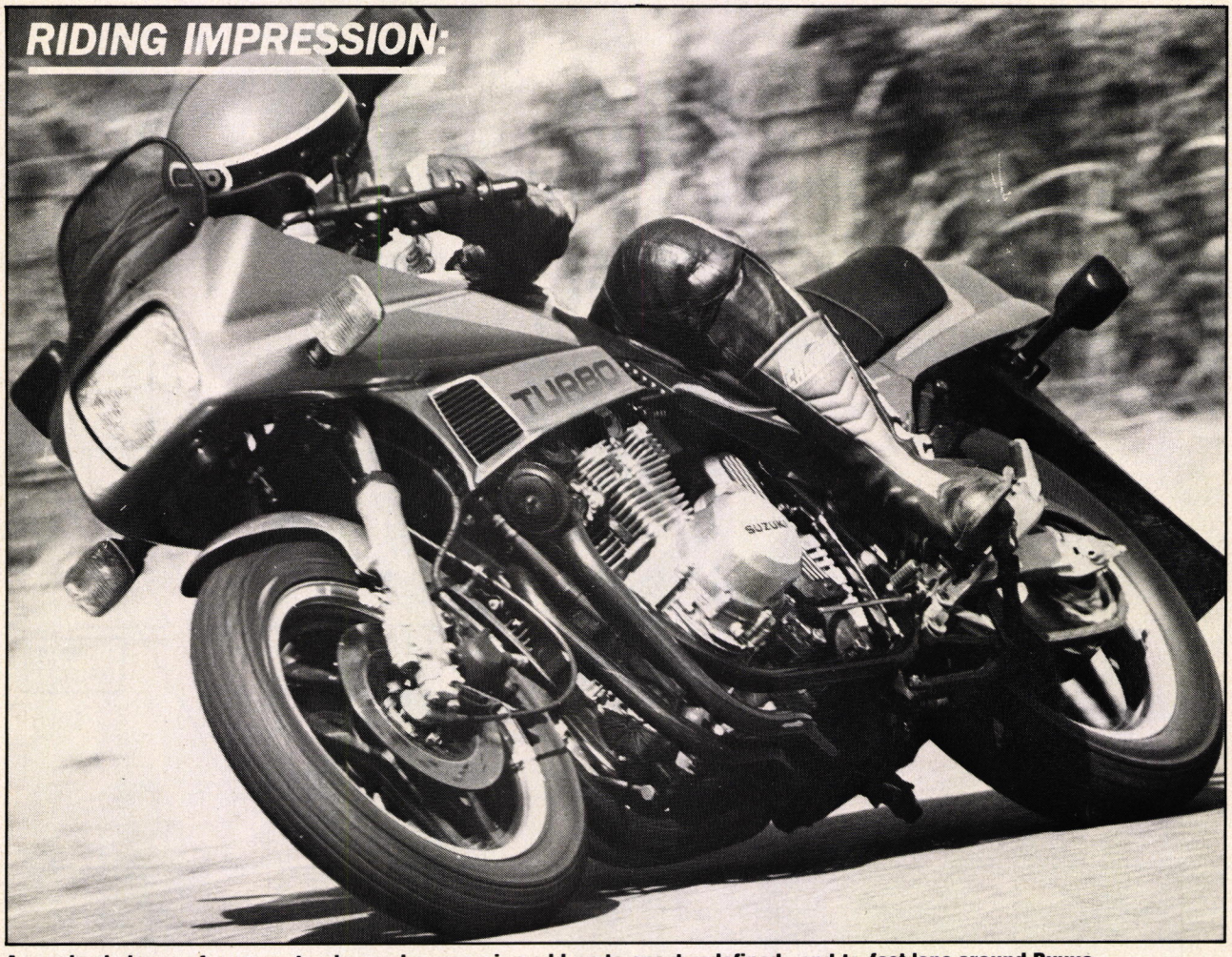
RIDING IMPRESSION:



PHOTOGRAPHY ©1982 GRAHAM SANDERSON

A precise balance of power, steering and suspension add up to sport redefined—and to fast laps around Ryuyo

Aided by a 650 four with a top speed of 135 mph.

Suzuki XN85 Turbo

Learning to handle a high-speed turbo.

• All the European journalists at Suzuki's Ryuyo test track in Japan agreed that the XN85 Turbo is an impressive motorcycle. And after racing around the four-mile circuit, I can confirm that it's the bike's handling, rather than its IHI turbocharger that makes it so good.

Not that the motor isn't fast—the XN85 truly can be said to have musclebike power in a machine weighing less than 500 pounds—but its exemplary handling overshadows everything else. The bike's light weight and uncommonly low riding position make the machine easy to flick into corners, and the race-developed 16-inch front wheel along with specially designed Michelin tires further enhance the Turbo's light and responsive feel.

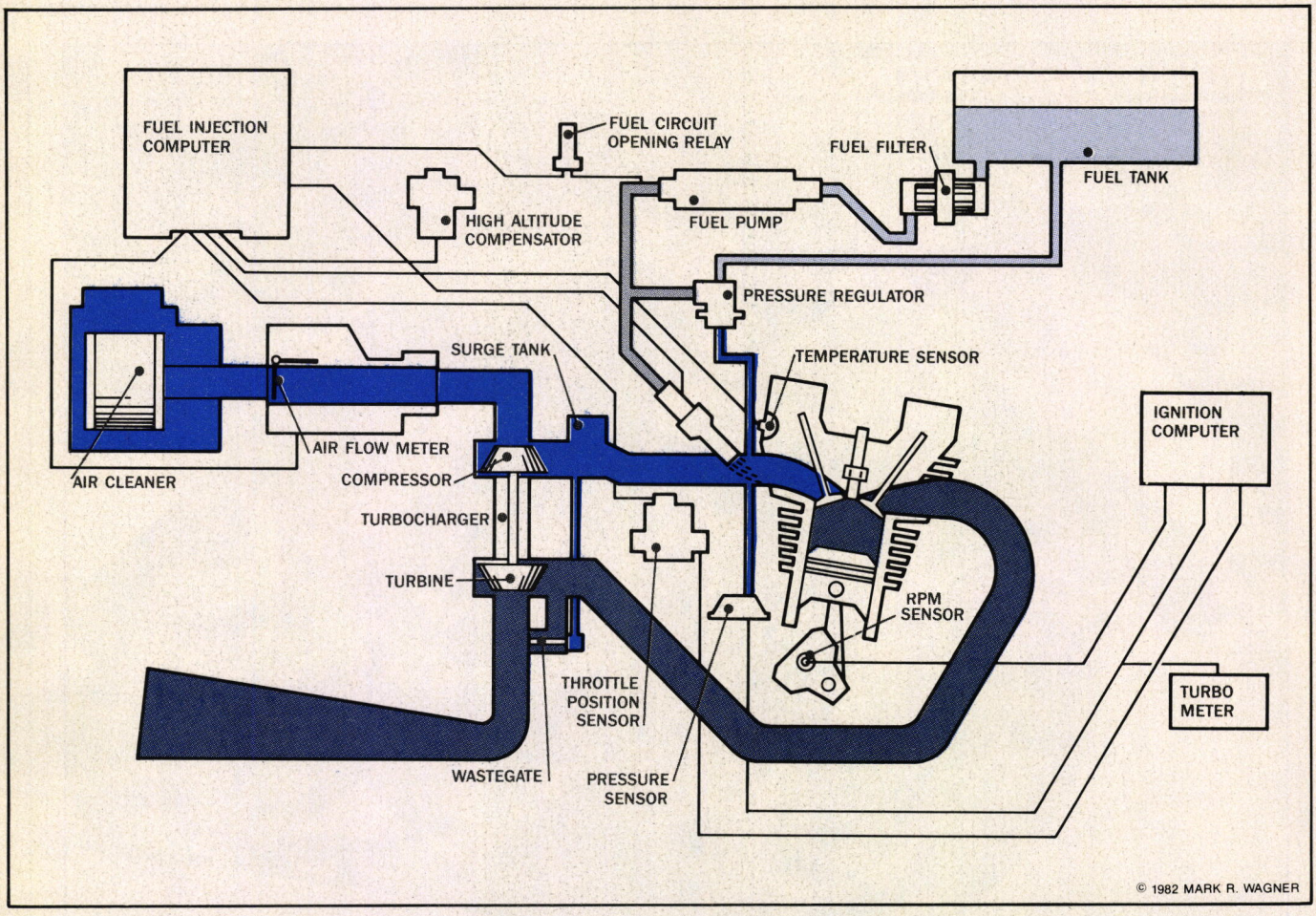
One rough section of track in the middle of a high-speed turn did have the XN85 scurrying around and shaking its head, but the straight-leg fork and Full Floater suspension kept the bike under control. In fact, the Turbo feels so stable that it makes Suzuki's fine-handling GS1100E feel heavy and cumbersome by comparison.

The 1100 has the advantage in roll-on acceleration, though, and the Turbo can't keep up with the bigger bike in a straight dragrace. Below 4000 rpm the XN feels much like a standard GS650, and the tach needs to be in the 5500 to 6000 rpm range before the turbo makes its presence felt. And even then you don't get a bullet-from-a-gun punch, just an ever-increasing surge of power from the 10.5 pounds of boost.

Turbo lag isn't much of a problem on the Suzuki, and with the engine spinning at 6000 rpm, the XN85 certainly will rush out of corners. Power seems to start falling off at around 8000 rpm, but the Turbo still will breeze up to 120 mph with consummate ease, and should be capable of reaching its theoretical top speed of 135 mph. Suzuki claims that the Turbo is nearly a second quicker than a standard GS650 in the quarter mile, with a time of 11.7 seconds.

At those speeds the Suzuki's racer-like riding position and quarter fairing become more than cosmetic items. They make the Turbo comfortable at any speed, especially above 100 mph, where European riders will enjoy a relaxed ride.

Such high-speed comfort isn't available on many motorcycles, and neither is the XN85's light and predictable handling. In fact, the only thing that plenty of other bikes have is the Suzuki's horsepower. And being known for everything except its power makes this Suzuki a very unusual turbobike. *—Graham Sanderson*

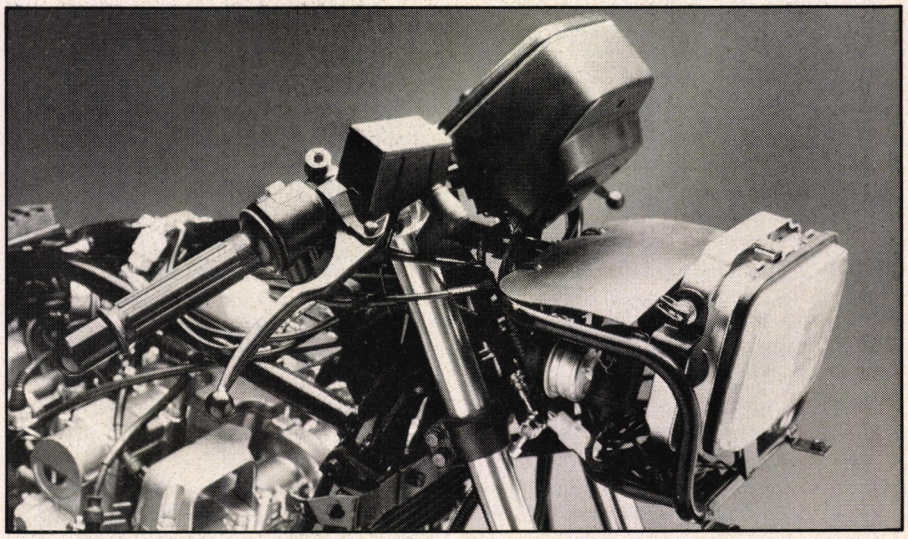


to make the XN85 more than just another turbobike. Agility should help the XN transcend the realm of turbobikes and enter the arena of pure sportbikes.

Suzuki also claims that the smaller front wheel has less rotational mass and therefore requires less braking force to slow it down. But that advantage must be almost as small as the reduced wind resistance that the engineers claim. Far more aerodynamic advantages are gained from the semi-crouched riding position and the Turbo's half-fairing.

There are obvious visual links between the Turbo's styling and the Muth-designed Katana, but the latest bike is entirely a product of Japan. It's a blending of the angular lines of Suzuki's visual flagship, the Katana, and more traditional Suzuki styling that makes the XN85 the most conventional-looking bike on the turbo market.

But Suzuki's aim wasn't to build a swoopy flagship and dazzle the showroom crowds. The aim obviously was to make the ultimate lightweight sportbike that would carry only the mechanical essentials. The turbocharger appears to be just one of those essentials rather than the entire reason for this bike's existence. And that's what separates the XN85 from the turbocharged opposition.



No microchip mysteries are hidden by the XN85's frame-mount fairing

Function, rather than flash, is the theme of Suzuki's turbocharged entrant.

You could, of course, call Suzuki's Turbo a flagship of sorts, but when the production version arrives late this year, the engineers in Hamamatsu won't be gauging its success by the crowds on the showroom floor. Rather, they'll be waiting to see if their Turbo blows everything else away out on the winding roads. ●

CYCLE GUIDE SPECIFICATIONS

Suzuki XN85 Turbo — street

IMPORTER: U.S. Suzuki Motor Corporation, 3251 East Imperial Highway, Brea, California 92621

SUGGESTED RETAIL PRICE: NA

ENGINE

Type ..... turbocharged four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts
Bore and stroke ..... 62.0mm x 55.8mm
Displacement 673.9cc
Compression ratio 7.4:1
Carburetion ..... Nippon Denso electronic fuel injection
Air filter ..... disposable pleated paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... computer-controlled electronic CDI
Charging system ..... 12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... helical gears; 1.957:1 ratio
Clutch ..... wet, multi-plate
Final drive ..... #540 chain (5/8-in. pitch, 1/2-in. width); 2.400:1 (36/15) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	3.167	14.875	5.0
II	2.188	10.277	7.3
III	1.684	7.909	9.4
IV	1.381	6.486	11.5
V	1.174	5.514	13.5

SUSPENSION/WHEEL TRAVEL

Front ..... 37mm stanchion tube diameter, 3-way adjustable spring preload, brake-actuated hydraulic anti-dive/5.6 in. (143mm)
Rear ..... Full Floater, spring preload adjustment NA/3.7 in. (95mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 10.2-in. (260mm) discs
Rear ..... double-action hydraulic caliper, 10.6-in. (276mm) disc

TIRES

Front .... 100/90-16 34H IRC Grand High Speed GS11AW
Rear ..... 120/90-17 64H IRC Grand High Speed GS11AW

DIMENSIONS AND CAPACITIES

Weight ..... 492 lbs. (223kg)
Weight distribution ..... 49.5% front, 50.5% rear
Gross vehicle weight rating (GVWR) ..... NA
Wheelbase ..... 57.9 to 59.6 in. (1471 to 1515mm)
Seat height ..... 31.1 in. (791mm)
Handlebar width ..... 28.5 in. (725mm)
Footpeg height ..... 13.9 in. (353mm)
Ground clearance ... 6.2 in. (158mm), at exhaust collector
Steering head angle ..... 27.0 degrees from vertical
Front wheel trail ..... 4.09 in. (104mm)
Frame ..... tubular mild steel, double front downtubes
Oil capacity ..... NA
Fuel tank ..... steel, 5.3 gal. (20.0*l*), no reserve
Instrumentation ..... speedometer, odometer, tripmeter resettable to zero, tachometer, LCD fuel gauge, LCD turbo boost gauge, LCD oil temperature gauge

PERFORMANCE

Fuel consumption ..... NA
Average fuel consumption ..... NA
Range, maximum ..... NA
Range, reserve only ..... NA
Speedometer error, 30 mph indicated ..... NA
Speedometer error, 55 mph indicated ..... NA
Best 1/4-mile acceleration ..... NA
Top speed (calculated) ..... 135 mph (218 kph)
Stopping distance from 30 mph ..... NA
Stopping distance from 60 mph ..... NA
WARRANTY: 12 months unlimited mileage

AVAILABLE COLORS: Metallic Silver only

These weights and measurements refer to a prototype motorcycle.

COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60 mph, ft.
Suzuki XN85-'82	NA	135	492	NA
Suzuki GS650E-'81	12.89/101.4	128	462	115
Suzuki GS1100E-'82	11.20/119.3	141	530	132
BMW R65 LS-'82	14.15/92.4	110	417	138
Honda CX500 Turbo-'81	NA	136	549	NA
Yamaha XJ650-'80	13.19/102.4	125	476	NA

INTRODUCING TEAM MAG MOPUS

NOW A MATCHED SET OF TIRES YOU CAN BANK ON.

New Team Mag Mopus represents a major advance in Bridgestone technology. Here's a set of motorcycle tires designed to complement each other. First, the front-end L303P puts you in control. It has a linked block tread pattern unique to Bridgestone that handles highway rain grooves wet or dry.

The G512 is the husky, low-profiled and road-hugging rear teammate. It gives you a real advantage. Its load carrying capabilities are designed to give you comfort and performance when you're riding. Furthermore, a wide footprint grabs the road and a unique tread pattern channels water away from the tread contact area to help reduce hydroplaning.

Team Mag Mopus benefits from Bridgestone's Finite Element Method or FEM. This is an outgrowth of NASA R&D that aids in the design of flex points and composite modeling. FEM lets Bridgestone project the lifespan and wearability of new material substances like those used in new Team Mag Mopus.

Team Mag Mopus is designed to run tubeless, but it can also be used with tubes on tube-type rims. Coal black or racy raised-white letter styling. It's up to you.

Bank on the latest advancement in motorcycle tires from Bridgestone. Team Mag Mopus.

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GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

BY DAVID DEWHURST

COMING SOON

• The British are coming and this time they're bringing a custom-styled Triumph Bonneville to win you over. The bike has been designed right here in America to insure that the custom-buying public gets exactly what it's been asking for.

Known as the TSX, this latest in a long line of 750 Triumphs features a stock '82-model electric-start Bonneville motor with constant-vacuum carbs. What's unusual about the motor is that it's been offset to the left to allow plenty of clearance between the chain and the fat 16-inch rear tire. To give it the macho look Triumph uses Morris mag wheels shod with an Avon Roadrunner tire at the rear and a skinnier Speedmaster at the front.

The custom look is further enhanced by a set of enormous header pipes that, for the first time on a Triumph, feature double-wall construction to prevent bluing of the chrome. Also, the balance pipe is moved from the traditional location close to the cylinder head to a less visible location under the motor.

The TSX is now the only Triumph to be sold with the old teardrop tank, and that is mated to new sidepanels. Smaller cosmetic details include tucked-in turnsignals and headlight, a cut-off muffler and a Drag Specialties chain guard.

• You'll be able to see the TSX Triumph in dealerships by late August, and while you're there, take a look at the other newcomer, the TSS. It's been called the "Bonneville that everyone has wanted" because it has a new four-valve-per-cylinder head. But there's more to this electric-start Bonneville than four extra valves. To withstand the extra power, the TSS uses a stronger crank with narrower and larger-diameter rod journals. The all-machined crank also is better balanced to reduce vibration, which in turn means that Triumph does not need to use rubber engine mounts.

Other improvements include a new aluminum cylinder, which has the barrel centers spaced farther apart to both improve cooling and provide more head-gasket area. There also is an improved oil pump to insure that everything keeps spinning smoothly.

There also are some changes being made just for the American market. The spoked wheels for the European market will be replaced by Morris mags, and the long mufflers will be shortened. And everyone will appreciate the twin-disc brakes, which are squeezed by the latest Lockheed racing calipers.

• Dutch car dealer Jan Huisman obviously has never heard of Honda's Gold Wing. If he had he might not have built his horizontally opposed liquid-cooled four-cylinder streetbike. Powered by a 1974 1400cc Subaru motor, this homebuilt creation uses plenty of BMW parts, including gearbox, final drive, rear wheel, headlight, instruments and fairing. Huisman also borrowed the entire front end from a Laverda. That bike's now without its Ceriani fork, Brembo brakes and spoked front wheel. The Dutchman even used a

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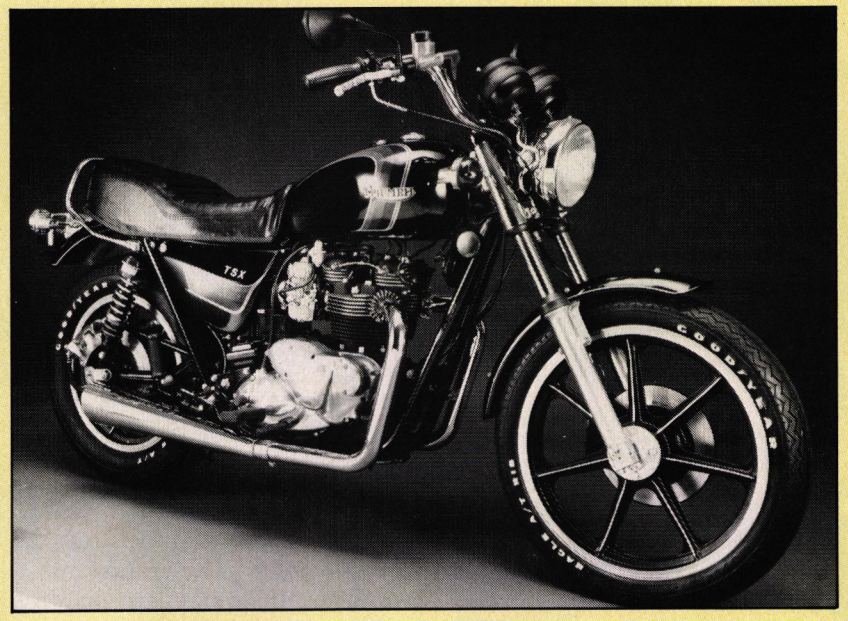
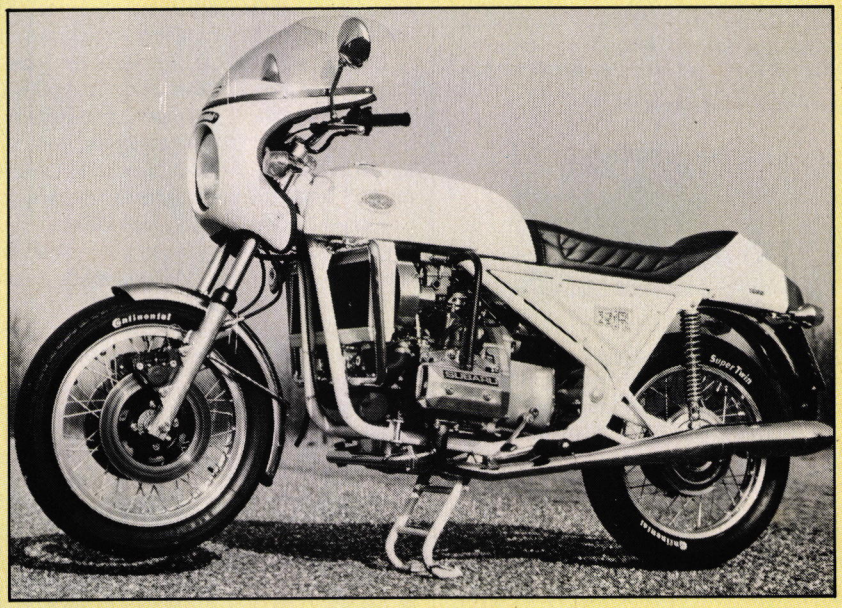


Triumph's new street-cruiser TSX makes a first appearance at Birmingham

The boulevard-look Bonneville, last Triumph to use the teardrop tank.



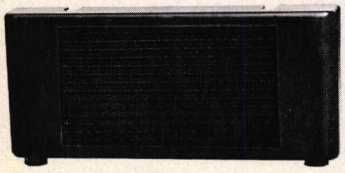
A replacement for the Gold Wing with a little help from Subaru, Laverda and BMW

It's a one-of-a-kind from the Netherlands.

HAYDEN. All the cooling you need for $59.95*

Hayden's brand new Mark 1 engine oil cooler is the lowest priced cooler available. Great for three wheeler applications.

*Suggested retail on selected kits.



The new race proven Hayden Mark 3 oil cooler features threaded fittings for optional steel braided hose installation and integral thermostatic control valve.

Used on Saladin Research and Development's winning bike ridden by Jimmy Adamo and Steve Cunneyworth.

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Common hand tools and about 30 minutes is all that's required to install a Hayden Oil Cooler.

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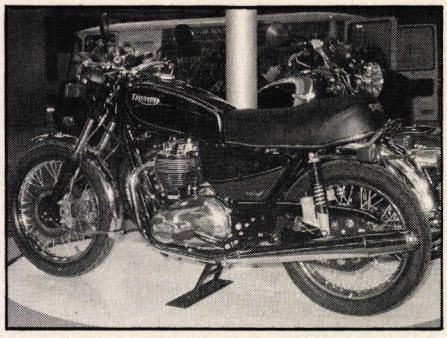


The eight-valve TSS on center stage

More valves for more power.

What rule says learning can't be fun?

With a tiny GPz for the beginner.

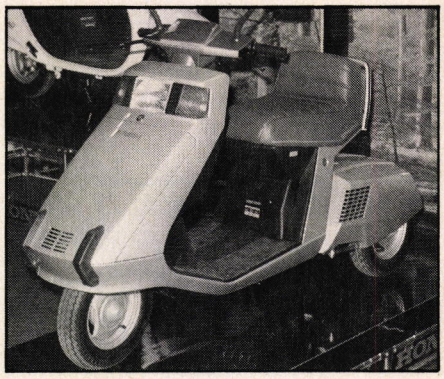
Suzuki tail section and BWM pipes on his first prototype, leaving only the frame, seat, tank and cooling system to be handbuilt. Development is continuing and Huisman hopes to build a limited number of replicas of his two-wheeled mongrel.

• Kawasaki recently introduced a liquid-cooled 125cc two-stroke for the European market. Aimed primarily at English learner riders, who are now restricted to 125cc machines, the AR125 carries all the big-bike features. From its mag wheels and disc front brake to its Uni-Trak suspension, the AR is a downsized version of the GPz550. Even the small fairing and combination seat and tank are similar. Only the AR125's single-cylinder engine and black expansion chamber give away its true identity. An unusual feature of the engine is a combination of reed and rotary-valve induction that's claimed to give the little screamer its steam.

• There's nothing elaborate about a new MZ250 trail bike recently seen in Europe. Horizontal cylinder-head fins are a little unconventional, but then every other aspect of this East German motorcycle looks a little agricultural, too.

The Communist Bloc trail bike

Hi-tech it's not.



Easy entry and an automatic shift

Just the thing for Palm Beach.

• Flowing lines are a pleasing feature of Honda's fast-flowing Stream. It's a three-wheeled utility vehicle designed for shoppers and short-distance commuters, and features a lockable "trunk" below the headlight. And to make life easier for less-experienced riders, the Stream's two-stroke engine drives through an automatic gearbox. There are even rubber bumpers to prevent collision damage.

–David Dewhurst

FEDERAL CASES

• Things are looking up in St. Louis. A pair of related actions by the Board of Alderman greatly increased the likelihood of passage for Board Bill 256, a measure to replace the outright ban on motorcycles in the city parks with an enforceable noise ordinance. Board president Thomas Zych heard testimony from members of the AMA, the California Department of Public Health and the Illinois Environmental Protection Agency. All groups supported the passage of Board Bill 256. The support helped; when it came to a vote the measure was passed on to the full Board by a margin of three to two; this, in spite of prearranged opposition spearheaded by Alderman Dan McGuire of the 28th Ward. McGuire's plans on shooting down Board Bill 256 fared no better at the meeting of the full Board; his opposition there was voted down 19 to 10. There were some concessions made, though, and because the bill was amended on two technicalities a final vote by the Board has been deferred. But it's plain that the Board has shown its distaste for an outright bike ban.

• 19 states now require the use of headlights whenever a motorcycle is operating on the streets, and according to a study recently completed by the University of North Carolina Highway Safety Research Center (HSRC), it is a measure that more states should adopt. "On the basis of the preponderance of evidence," the report states, "it is recommended that states enact legislation requiring the use of headlights during daylight operation of motorcycles." The report continues, "Such legislation appears to be a highly cost-effective method of reducing injury and death from motor vehicle crashes." Researchers studying North Carolina crash records found that there was a greater than 18 percent reduction in multi-vehicle

HI-TECH:

Poly-benzimid-azole Fiber

Spage-Age threads for the safety-conscious racer.

• Motorcycling has advanced in leaps and bounds, but until now our protective clothing has remained in the two-wheeled Dark Ages. The only major advance in clothing technology was the use of colored leather. But apart from those splashes of red, white and blue we still rely on the same cowhide that the earliest motorcyclists used to protect their hides.

But protective clothing might be on the verge of the Space Age, thanks to a new man-made fiber from Celanese. Originally designed for use in brake chutes on Air Force jets, Polybenzimidazole (PBI) truly can be called a Space Age product because it has been used by NASA to make space suits for the Shuttle astronauts.

What makes PBI so important for motorcyclists is that it offers more protection than leather, without the usual man-made-fiber disadvantages. Like the Nomex suits used by racecar drivers, PBI is completely fireproof (it won't even emit any smoke until it's heated to 1040 degrees), but unlike Nomex (and most other man-made fibers), PBI can breathe like cotton. What's more, tests have shown that PBI can absorb water as well as cotton, and that's what makes it ideal for protective riding gear.

A Nomex suit feels like an oversized Glad two-ply, and with all the nylon lining, full leathers aren't much more comfortable. But without losing any of its comfort qualities, a PBI suit could be made thick enough to far exceed the abrasion resistance of leather.

With so many advantages you might wonder what's stopping PBI from flooding the two-wheeled market. Not surprisingly, one of the main problems is cost. Right now PBI is far more expensive than leather, but like everything from mini-computers to Teflon coatings, the space program eventually might bring down that cost. But right now there seems no real answer to PBI's drab appearance. Not even NASA has found a way to change the fabric's natural army-olive-drab coloring. But for a two-wheeled world that went so long with nothing more than black leathers, olive drab might be quite acceptable. *–David Dewhurst*

Continued

NEW FROM CYCLE SOUND . . .

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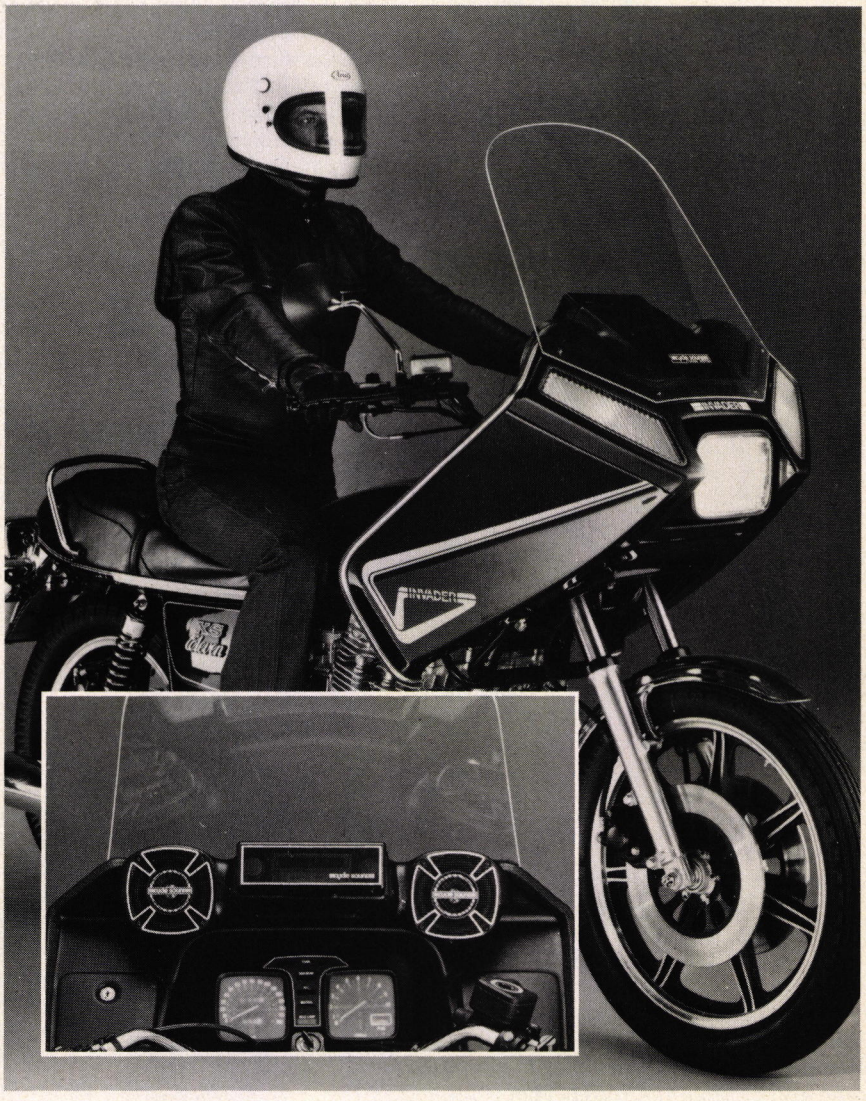

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crashes involving motorcycles after the state adopted a lights-on law in 1973. This most recent study is titled "The Impact of a Motorcycle Lights-On Law: An Update," and the findings confirm conclusions reached by an earlier study released in 1977.

• The Indiana legislature recently defeated that state's Senate Bill 88, a measure to repeal the special motorcycle licensing requirements of Indiana. The bill would have eliminated the tests and qualifications necessary to validate an Indiana driver's license for motorcycle operation. The bill also sought to abolish the special system of learner permits in the state.

• Finally, the cost of motorcycling might go up in Michigan, if proposed legislation in that state passes. Senate Bill 567 calls for an increase in the fees charged for motorcycle licenses and registration. The fund created by this extra charge would be used to finance classes in motorcycle safety, and to hire a state motorcycle safety coordinator. *–Joe Kress*

HARD CASH

• The FIM has approved a contract with ABC Sports Television for the North American broadcasting rights to the 1982, '83 and '84 Ice Racing World Championships. Included in the package were the North American rights to also broadcast the Individual Speedway World Championships for 1983 and 1984.

• Triumph finally is in the black. By selling off the remainder of its 1979 models stockpiled in the U.S., the Meriden manufacturer has paid off the last of its 2-million-pound debt, a debt that was once as high as 4.2 million pounds.

• While things are now looking up for Triumph, they couldn't be worse for OSSA. Only 20 workers remain at the crisis-torn Barcelona factory, which hasn't produced a single motorcycle since Christmas. The firm desperately is trying to raise money for a rescue operation, now that the Spanish government, which stepped in to save OSSA in 1978, has refused to do so again.

• In the increasingly popular Battle of the Twins series, Harley-Davidson is the latest manufacturer to jump in with its own contingency award program. The Harley payout for H-D mounted riders in the series is $1000 for a GP-class win and $500 for a Harley win in any of the other three classes.

• More Harley-Davidson and more money. The H-D sponsored Biker's Fight Against Muscular Dystrophy is entering its third year now, and to kick things off for 1982, more than $40,000 was raised for the charity at Daytona Speed Week this year. Willie G's traditional ride from York, Pennsylvania to Daytona Beach, Florida brought in $10,844 in pledges.

• If you're slightly hesitant about signing on the dotted line for a motorcycle that you've never ridden, take heart. At Daytona Beach this year, H-D initiated a marketing technique that it hopes its dealers will pick up on–test rides of new motorcycles. FLTs, FXRs, FXRSs, the Sportster and the Sturgis were all made available to the public for testing. Harley-Davidson is convinced that demonstration rides definitely have a place in motorcycling.

• Test rides might have a place in motorcycling, but Kawasaki plants definitely don't have a place in the U.S., according to that company's plain-speaking president. Kenko Hasegawa, the head of K.H.I., has been less than enamored with Kawasaki's Lincoln, Nebraska facility. Says Hasegawa, "Productivity is not as high as in Japan, the quality of spare parts is not as good, and on top of that, the price is higher. The sum total is not so good, so we don't want to have another factory in the U.S." *–Joe Kress*

RUMORS

• Every manufacturer will tell you that racebike technology eventually finds its way onto the production line, but how often do you hear about a complete racebike going onto the production line? That's what our informed source inside a European Honda distributorship is saying about the new FWS1000 vee-four racer. If our informant is right, the chain-driven 1025cc bike might even be in Honda showrooms by next year. Our man even suggested that the vee-four might replace the CBX in Honda's line.

• Harder to believe is a rumor that Honda is also about to build a street-legal version of its vee-three two-stroke GP racer. It probably won't be a full 500cc motor like Spencer's and Lucchinelli's but a 350 to challenge the RD350LC and a rumored new 350 from Suzuki.

Although these mid-sized screamers aren't destined for the lucrative American market, there is a strong inter-company battle raging over the class in Japan.

• Suzuki would appear to be a little more reluctant to rush into production with a street-legal racer. A Japanese official was reported as saying that a road-going RG500 has been seriously considered, but the factory does not feel the market is ready for a disc-valved square-four two-stroke streetbike. Well, are you?

• If two-strokes don't do anything for you, a 1000cc vee-four Ducati might get your juices flowing. The idea obviously excites engine designer Fabio Taglioni, who is believed to be creating the liquid-cooled vee in three different guises. The Italian grapevine is saying that a touring version of the 90-degree motor will produce about 90 hp. A sport version might churn out as much as 115 hp and a full-race motor could be capable of 150 hp.

The Italians always have made extravagant claims for their engines, and Latin horses must be a little smaller than their American cousins, but even allowing for inflated numbers the Duke rumor is enticing.

• While you're thinking big, try to visualize a five-stroke Maico. Yes, a five-stroke. An innovative German designer is thought to be toying with a regular Maico lower end with a portless cylinder and a poppet-valved head. The motor is believed to have reed-valve-controlled crankcase induction and a transfer passage up to the belt-driven inlet valves.

Once you've figured how the motor works, try to imagine who's going to buy it, a two-stroke freak or a thumper jumper. *–David Dewhurst*

APART FROM THE CROWD

• Bruce Penhall is becoming motorcycle racing's Golden Boy of The 80s. Besides playing himself in an upcoming episode of the popular TV series "CHiPS," the Speedway Superstar has been named Cosmopolitan magazine's bachelor of the month. And as if that weren't enough, Penhall's two Pro-Art posters are number-one bestsellers worldwide, putting Tom Selleck, of "Magnum P.I." fame, into second place as the most popular piece of beefcake.

• More posters and TV spots, but this time with a slightly more familiar face. Reggie Jackson, baseball's Mr. October and long-time motorcyclist, will appear in public service announcements promoting rider safety. The California Angels slugger filmed the piece for the Motorcycle Safety Foundation, and both the TV spot and poster should be out soon.

• Here's a case of like father, like son. Or maybe it's the family that jumps together, stays together. Robbie Knievel, son of famed stuntman Evel Knievel, recently was spotted in Phoenix, Arizona performing 100-foot-long, no-hands motorcycle jumps. Maintaining tradition, the younger Knievel even was wearing the family jumping colors—white with stars and stripes. Snake River Canyon, watch out.

• It looks like a showdown on the salt, and it's going to be two wheels vs. four. Kyle Robbins, of Salt Lake City, has challenged Don Vesco to a "winner-take-all" race across the salt flats at Bonneville. Robbins will be in a car and Vesco, holder of the two-wheel land speed record at 318-plus mph, has accepted. The confrontation will take place in October.

• As you might expect, the political upheavals in Poland have spilled over into the motorcycling world. Several international motorcycling events scheduled for Poland have been canceled, among them the Polish 250 MX Grand Prix and several prominent Speedway races.

• Hertz Rent A Car is also Hertz Rent A Bike, at least in South Africa. For $140 per week, the company is letting out new BMW R100RTs to its customers. For now the Beemers are all they have, but who knows, maybe they'll expand their offering with GPzs, Katanas and GS11s. That certainly would put some truth into the pat old phrase, rent-a-racer. Don't hold your breath waiting.

• Motocross racing and inner-city slums might not seem like they go together, but in England that's not the case. In an attempt to ease tension in strife-torn, riot-ridden cities, "motorcycle centers" are planned throughout the country. The first of these centers, incorporating among other things a motocross track, recently opened in Birmingham. The trend might catch on in this country, but it's hard to imagine the South Bronx ever being the motocross capital of the nation.

• If four-wheel drive is so popular with the trucking crowd, reasoned West German engineer Helmut Tomaschek, why not two-wheel drive for the off-road motorcyclist? Answering a question that no one had asked, Tomaschek has developed and patented an auxiliary front-wheel drive system for motorcycles, the prototype fitted on a 280 SWM. The drive is by chain from the countershaft to a ring and pinion gear, through an enclosed flexible shaft to another ring and pinion gear mounted on the fork, and then through a short chain to a front-wheel mounted sprocket. The system has a slip-clutch along with a manually operated disengager, and the gearing is lower than the rear-wheel drive so the front wheel pulls only when the rear wheel is slipping. If this setup sounds slightly strange, just imagine it with a transmission incorporated into one of the pinion housings, offering reverse gear complete with back-up lights.

• Finally, Harley-Davidson makes it into the Stranger Than Fiction file. It's no secret that with the departure of AMF, the maker of the Milwaukee Thunder Machine is looking for extra cash, but how some of that cash is raised is raising a few eyebrows. Figuring that the strongest thing it has to trade on is its name, Harley-Davidson is granting licensing agreements for products ranging from toys to cologne to candy bars. So in the not-too-distant future your grocer might be stocking H-D Peanut Tank Cluster candy bars. They'll be the ones dripping oil on the supermarket shelf. *–Joe Kress* ●

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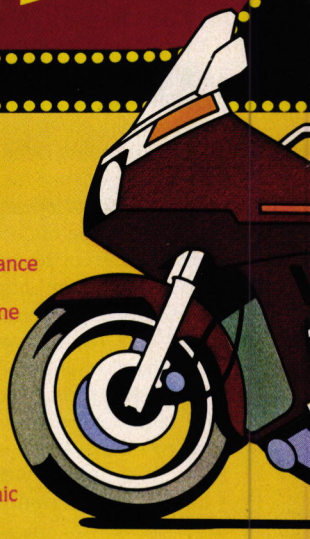

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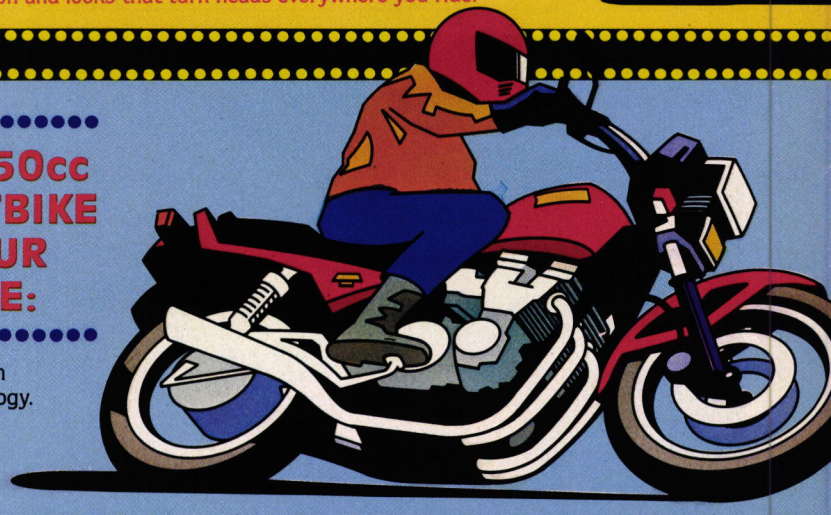

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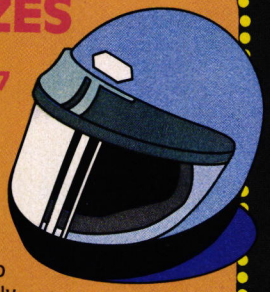

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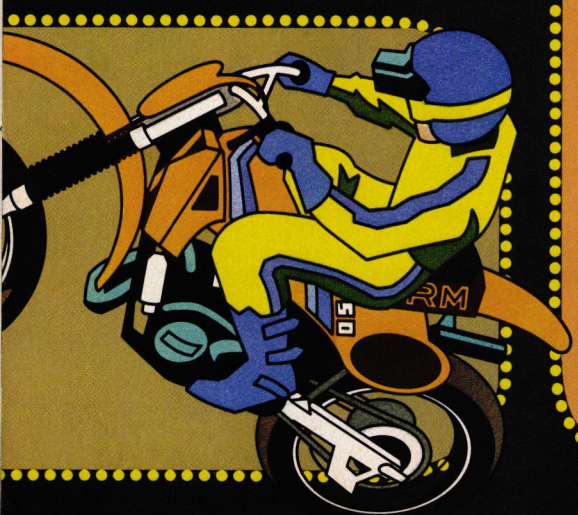

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Ask any 125 rider how far Europe is from Japan, and he'll say it's something like 10,000 miles, via the Arctic Circle. Ask the owner of a Husqvarna 430CR, a KTM 495 MC or a Maico Alpha 1 490 the same question and he'll tell you the two lands are worlds apart. Because in matters of Open-class motocross philosophy, Japan and Europe have almost nothing in common.

The Japanese tide that swept through the 125 and 250cc classes in the last decade left the Open class relatively untouched. As a result, Husqvarna, KTM and Maico have fortified themselves in American Open-class motocross and have a market share that rivals that of the Japanese Giants, in spite of price tags that are hundreds of dollars higher. And it's simply because of the different attitudes concerning the making of both motorcycles and profits that exists in the two hemispheres.

COMPARISON TRACK TEST:

The European Open-Classers

The Husqvarna 430CR, KTM 495 MC and Maico Alpha 1 490 meet in the western semifinals.

BY RON LAWSON

Honda, Yamaha, Suzuki and Kawasaki look at motocross as a stepping stone on the way to the more-lucrative street market. Profits from selling MXers are possible, but the huge costs involved in research and development, supporting a race team and catering to the frequent changes in MX fashion push prices far above what most racers would consider reasonable. So the machines are priced cheap. The loss is minimized by selling as many units as possible, dispersing the fixed cost over a large number of machines. Motocross does breed publicity, if not profit. The Open class, however, doesn't sell. It's the least popular MX class in this country. That's why Japanese Open-class interest is low-key—Honda went for years without a big-bore, and Kawasaki currently is without one.

But for the lower-volume European manufacturers, the Open class is large enough. Even though there are fewer Open-class riders, those riders will pay more for a machine. And because MX bikes are an end in themselves for the Europeans—they aren't used to promote or sell anything else—the Open class receives the most emphasis as the most profitable class. More advertising, more research, more *effort* goes into the Open class.

And a look at the European Open offerings shows that effort. The Husky 430CR is a standard. Its twin-shock Ohlins design has reached the highest point of two-shock evolution. And Husqvarna is a company that takes pride in not following the crowd. The 430 reflects that in everything from its six-speed gearbox to its aluminum tank.

The KTM relies, more than anything else, on force to do the job. The 495 is the most powerful production motocrosser ever built. Additionally, this year the KTM goes to single-shock Pro Lever suspension. Maico has gone the same way, dubbing its system Alpha Control, but it's handling that Maicos are most known for, and the 490 is designed to uphold that tradition.

Each machine has assets aimed at making it the best Open-class motocrosser in the world. For the manufacturers of these bikes, it's more than a matter of promotion to have the top machine—it's a matter of survival. But before any one of these machines even has a shot at being World's best, it first has to be named Europe's best. And that means they go inch-to-inch against each other in CYCLE GUIDE's all-Europe Open-class cross-off.

Continued

Open-Class Comparison: Tech Inspection

Engine:

Top End: The Husqvarna, KTM and Maico represent three very different approaches to building Open-class machinery. While the KTM and the Husky do share a 74mm piston stroke, their engines have little else in common. The KTM uses a mammoth 92.3mm bore for a 66cc displacement edge over the Husky, which has an 86mm bore. The Maico has nearly the same bore as the Husky (86.5mm) but with a longer stroke that helps yield a more gradual power delivery.

The intake systems on the three bikes also differ. Both the KTM and Maico use standard 40mm Bing carburetors, now that KTM has abandoned the Bing Power Jet it used last year, but the Husky comes with a Japanese-made Mikuni. The Maico is the only one of the three that doesn't use a reed valve, staying with its piston-port design. It's likely, though, that future Maicos will make use of reeds—the cylinder liner has two windows above the bridged intake port that have no corresponding passages in the barrel. When a reed is added, these windows will become booster transfer ports.

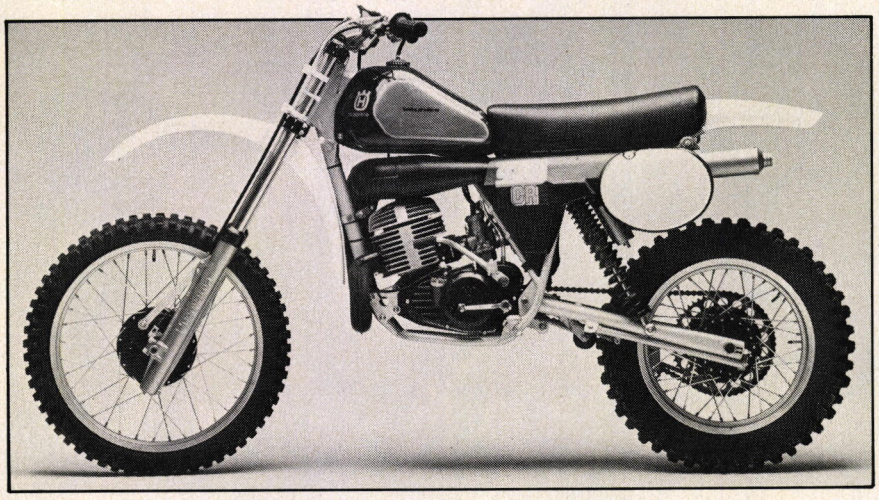
The KTM uses an eight-petal reed block, which is new this year. Along with its new reed, the KTM received three booster transfers to supplement its four direct transfer ports. The KTM's exhaust port also has been redesigned and is now oval-shaped and unbridged. Husqvarna continues to use two vertically positioned reed blocks, each of which has four fiber petals. The four transfers and one booster transfer port are unchanged, but the exhaust port has been raised 1mm for an increase in high-rpm power.

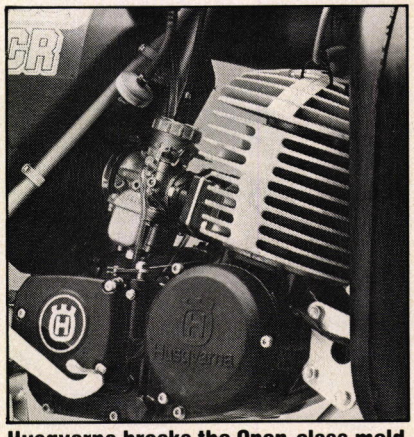
A 30mm-shorter header pipe used on the new Husqvarna works toward the same end. Maico went the opposite direction this year, using a longer header pipe in an attempt for more low-end power. The Maico's only port change is in the transfer passages, which have been made less restrictive. Both the Maico and the KTM have centrally located exhaust ports, while the Husqvarna's is slightly offset to the left. The Husqvarna and the KTM don't use head gaskets, so head-retorquing is an important part of maintenance, particularly during break-in.

Bottom End: The swingarm pivot bolts on all three machines double as the rear motor mounts, and both the Husqvarna and Maico have strengthened cases around this pivot bolt. All three machines use internal-rotor Motoplat ignitions and full-circle crankshafts.

Drivetrain:

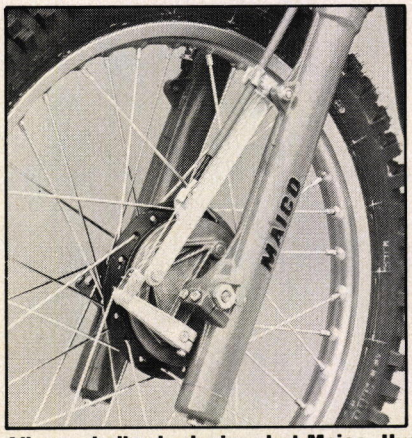
Primary Drive: The Husky and the KTM use straight-cut gears to transmit power from crank to clutch, while the Maico uses two side-by-side single-row chains. Of the three clutches only Husqvarna's uses fiber plates. The KTM's has nitrofied steel drive plates with sintered copper driven plates, and the Maico's has





Husqvarna breaks the Open-class mold

With more gears and less grunt.



All are similar in design, but Maico, Husky and KTM derive Open-class fork philosophy from three different countries

The in-house forks of Husqvarna and Maico out-travel and out-perform the KTM's imported Marzocchis.

steel drive plates with brass driven plates. The Maico also differs in the type of clutch springs used; rather than six coil springs as on the other two bikes, the Maico uses 18 Belleville-type dished washers stacked in the center of the hub.

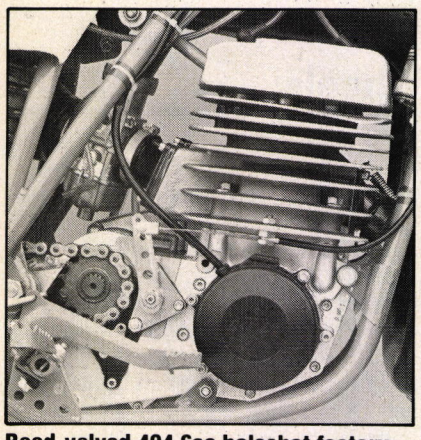
Gearbox: Both the KTM and Husqvarna use cylindrical shift drums for gear selection, similar to most Japanese machines, but the Maico, again, is different. A star-shaped rotor transmits motion from the shift lever to a flat plate that slides back and forth and has cam slots that the shift forks follow. The Maico and the KTM have five speeds, while the Husky uses six ratios to better make use of its slightly narrower powerband. All the bikes have undercut gear dogs for secure engagement. KTM is using less undercut and narrower dogs than it has in previous years, in an attempt to ease shifting. Husqvarna's only gearbox modification this year is a change in the heat treatment of the gears, aimed at reducing the incidence of gear-dog breakage.

Suspension:

Front: Maico and Husqvarna manufacture their own fork assemblies. Maico is using the largest stanchion tube diameter of the three, its tubes measuring 41.8mm. This year the Maico sliders are manufactured from two pieces that are pressed together, although some early bikes came with the single-piece sliders used in '81. The new sliders have more bushing area for less flex, and Maico claims there is no increase in friction. The Husqvarna fork has 40mm stanchion tubes, and two oil seals are stacked in each of the Husky's fork legs. During the test it was the the only machine that didn't seep fork oil, ending a long tradition of leaky Husky forks. The only internal change to the fork is a more pronounced cone on the damping rod to increase damping action during the final stages of both the compression and rebound stroke.

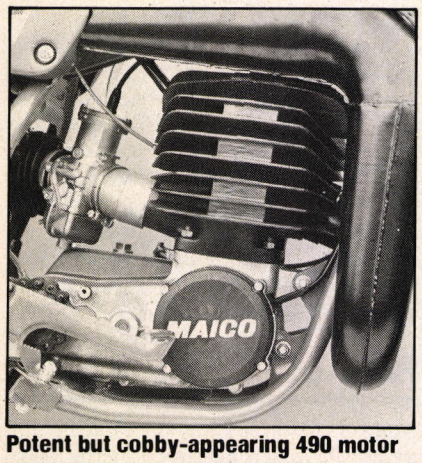
KTM uses a 40mm Italian-made Marzocchi fork on the 495. Last year the Marzocchi sliders were cast magnesium, but this year they are forged aluminum. According to KTM, the new sliders are lighter than the old ones, in spite of an increase in size (last year they had 38mm stanchions) and the change in material. To reduce friction in the new fork, Marzocchi uses Teflon bushings instead of the magnesium sliding surface of last year.

Rear: Both KTM and Maico have switched to single-shock rear suspension, while Husqvarna retains its dual Ohlins piggyback shock absorbers. The Maico design, dubbed Alpha Control, uses a remote-reservoir Corte & Cosso shock mounted to the frame on top and to a rising-rate linkage at the bottom. The Maico's shock is mounted farther forward than any on other single-shockers, and the resulting mechanical advantage requires the use of a 700-pound-rated spring. Compression damping is accomplished through two stages of flexible washers, which can be stacked and arranged to independently tune the rear end for low- and high-speed compression. Maico made several damping design changes mid-year, reducing low-speed compression damping through the use of thinner washers and increasing high-speed damping with the addition of another washer. The shocks with the modifications are identified with "M1" stamped on the body. Early shocks also suffered from trouble with the upper mount; the shock body was wider than the Heim joint, which led to binding and eventual breakage. Maico is making both damping and shock-body corrections at no cost to the buyer. The Maico's Corte &



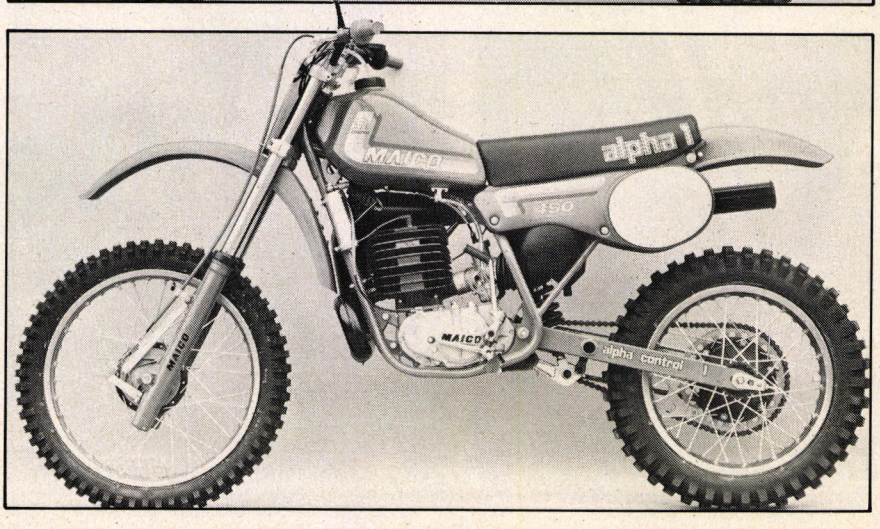
Reed-valved 494.6cc holeshot factory

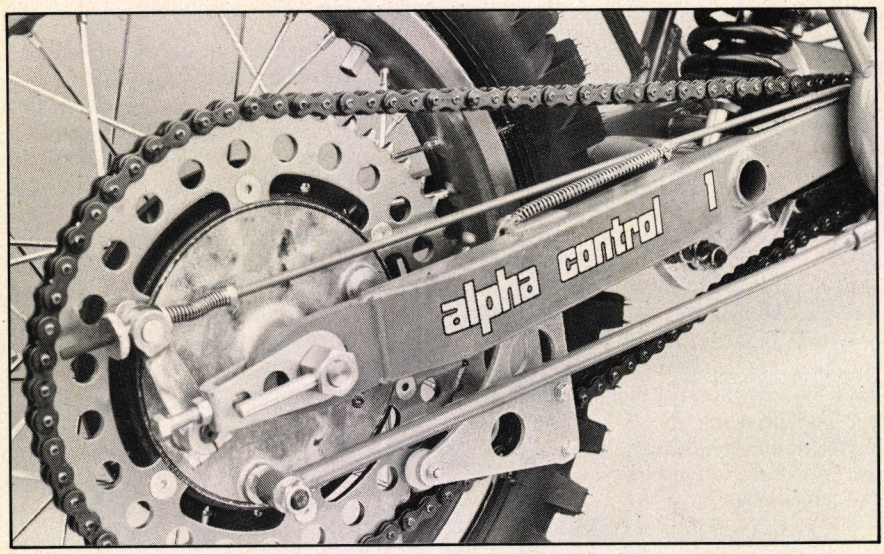
The horsepower king.



Potent but cobby-appearing 490 motor

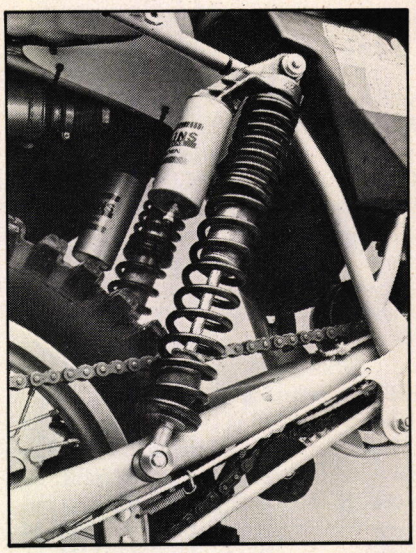
Casting doubts on sand.





Maico's steel swingarm keeps Earth in contact with Alpha Control

But the full-floating brake shoes don't fully contact the hub.



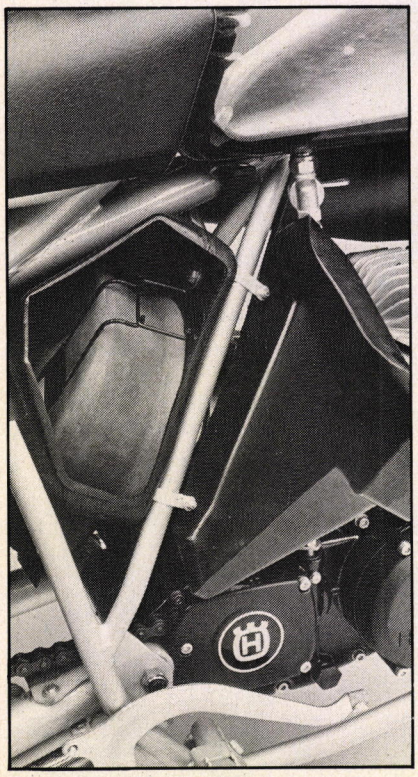
Husky's cultivated twin-shock design

The cream of the suspension crop.

Cosso shock has externally adjustable rebound damping. Although the adjustment knob has 60 distinct clicks, only the first 48 have any effect on damping.

In Europe, the KTM comes with a White Power shock, but the U.S. model is fitted with an American-made Fox Factory Twin-Clicker shock that offers both externally adjustable rebound damping (38-way) and externally adjustable compression damping (8-way). The Fox shock, like the Corte & Cosso, has undergone assembly-line modifications. While early models had twin-stage compression damping like that on the Corte & Cosso, later models of the shock went to a single stack of flexible washers. The stock spring is rated at 450 pounds; there is an optional 550-pound spring offered but no option for a lighter spring is available.

The Husky has more spring-rate adjustability than either of the other two by virtue of a wide range of replacement springs available through Husky Products. The Ohlins shocks use dual-rate springs, with 10 low-rate and nine high-rate springs available for a possible 90 different rates. Damping changes also are possible with the Ohlins, but disassembly is required. Like the Corte & Cosso and the Fox, flexible washers can be added or removed to affect damping.



Easy-access Husky air filter

A twin-shock side benefit.

U.S. KTMs come with Fox shocks

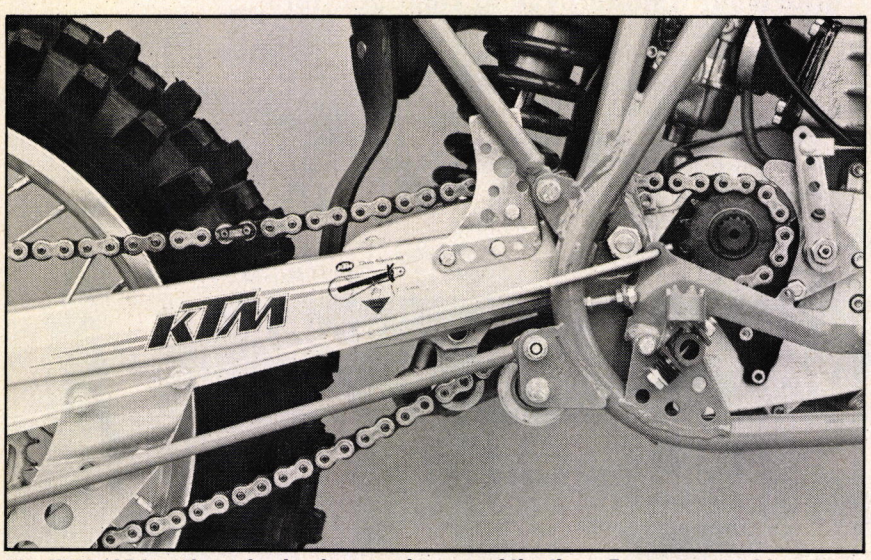
U.S./Austrian/Italian alliance.

Wheels:

Three different companies supply the alloy rims for the European Open-classers. The Maico uses Green-Label Akronts, the Husky has Nordisk rims and the KTM rolls on Suns. The Maico and Husky rims are gold-anodized. All three machines have full-floating brakes in the rear and conical hubs at both ends. The Maico has an increase in spoke thickness this year, going from 4.4mm to 4.8mm in the front and 4.8 to 5.4 in back, but in spite of the upgrade, the Maico was the only machine to break a spoke during the test. Both the KTM and the Maico use Metzeler tires. The 5.10x18 at the rear of the KTM is designed for use on soft ground, and its knobs will fly off when ridden on the harder stuff. The 4.50x18 Metzeler at the rear of the Maico is more versatile. Husqvarna chose to use a 17-inch rear wheel and Trelleborg rubber at both ends. All three machines use rim locks that are half metal and half rubber and can sometimes can rub holes in the tube. The rim locks were responsible for flats on the Husky and the KTM during the test.

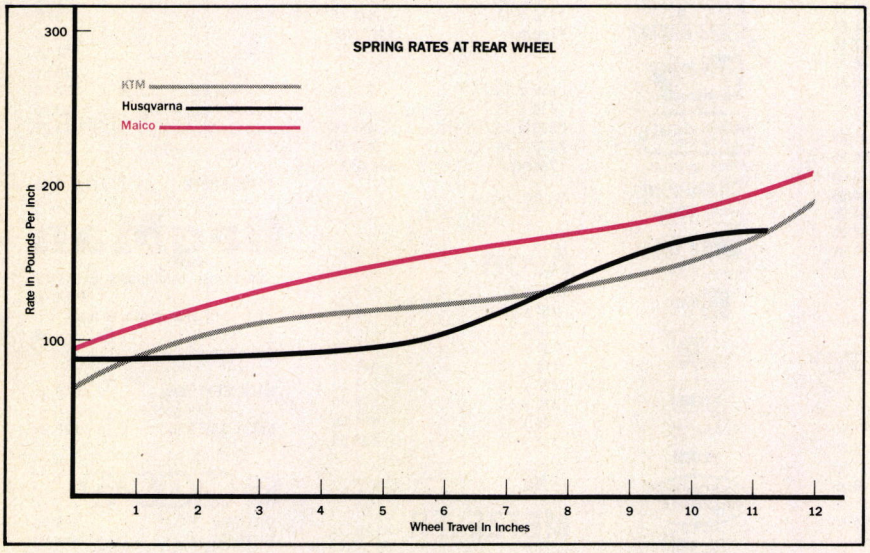
Frame:

None of the three companies has significantly changed frame geometry this year. The KTM remains the shortest of the



The KTM 495 has the only aluminum swingarm of the three European machines

Giving American motocrossers some Pro Leverage on the Open class.



three and has the steepest steering head angle—27.5 degrees from vertical, compared with the Maico's 28.5 degrees and the Husky's 30.5 degrees. The Husqvarna uses a single-front-downtube frame, while the Maico frame has twin downtubes and the KTM's has a single downtube which divides into a double cradle above the exhaust pipe. The KTM frame also differs from the others with its two-piece construction. The rear section—everything behind the swingarm pivot—unbolts for access to the shock and swingarm (similar to last year's Honda RC factory motocrossers). And the KTM is the only bike of the three to employ an aluminum swingarm. KTM's extruded swingarms go through a 48-hour heat-treating process, according to the company. Maico considered using an aluminum swingarm, but with the change in rear suspension chose to stay with its proven steel unit for at least one more year. Husky still maintains that the strength of steel is too valuable an asset to give up for the small weight saving of aluminum. The frame backbones on all three machines are constructed of round chromoly tubing, although Maico tried box-section tubing but went back to round in mid-1981.

Details:

All three machines have Magura controls. The KTM uses short levers for both the clutch and front brake, while the Husqvarna has a short lever only for the front brake. The Maico has full-sized Magura dog-leg levers on both sides of the bar. The Maico also uses Magura barrel grips that all test riders disliked because of their odd shape. But the Magura straight-pull throttle assembly, which the Maico and the KTM have in common, is compact, durable and easily disassembled. The Husky's Gunnar Gasser is larger and more exposed, but is cased in aluminum, rather than plastic.

For air filters, both the KTM and Maico have two-layered elements made by Twin Air of Holland. The airboxes on both machines were redesigned around the rear shock. The Maico's is two pieces, riveted and glued together; and while the intake boot is said to flow 40 percent more air than last year's, the airbox itself is more restrictive, and Maico recommends installing vents if you ride in areas that are not exceptionally dusty or wet. The Husky has the easiest filter access—the element can be removed by hand in seconds.

All three machines have left-side kickstart levers. The Maico's, unless moved all the way forward on the shaft, can hit the shift lever and knock the bike into gear. The Maico's rear brake lever also is poorly designed. The pedal tends to be slippery and is positioned too high—all the adjustment is used long before the pedal is level with the peg. The tanks and seats on all the machines are designed so the rider easily can move forward. The KTM's seat is longer than last year's model and its tank has been shortened.

COMPARATIVE TEST DATA:

Make & Model	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/ Rear, percent	Steering head angle/ Trail, degrees/inches	Transmission, number of speeds
Husqvarna 430CR–'82	11.8/11.3	236	46.2/53.8	30.5/6.0	6
Maico Alpha 1 490–'82	11.6/11.5	248	47.2/52.8	28.5/5.0	5
KTM 495 MC–'82	11.3/12.1	247	46.7/53.3	27.5/4.8	5
Honda CR480R–'82	11.5/12.0	232	48.5/51.5	27.2/4.2	4
Suzuki RM465–'82	10.8/12.0	234	46.9/53.1	29.3/4.8	4
Yamaha YZ490–'82	11.3/12.8	238	47.5/52.5	28.5/4.7	4

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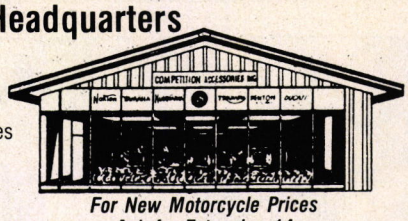

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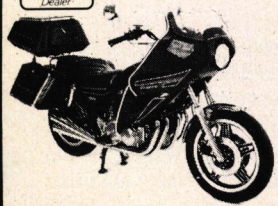

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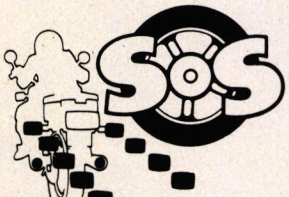

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• The Husqvarna 430, the KTM 495 and the Maico 490 are as different from each other as they are from any Japanese machine, but still, they tend to be heaped into the same broad performance category and labeled *European*. The story goes that European bikes have a certain kind of power and handling that separates them from another huge pile of machinery that falls neatly into the slot titled *Japanese*.

But Sweden, Austria and Germany each has its own very distinct and very different philosophies concerning the building of motocrossers, and those philosophies are reflected in the Husky, KTM and Maico. Each machine has its strong and weak points, and no two produce the same feel on the track.

The KTM's strongest asset is obvious from the first moment you ease out the clutch lever. Power. The 495's torque is incredible, and it gets even stronger as the revs climb. The KTM doesn't have an exceptionally heavy flywheel, and rpm can climb at an almost frightening rate. The rider quickly learns to shortshift the 495, because at low rpm it can stay with anything on the track and the top-end punch can be saved for when it's needed. The KTM's powerband was broad enough for us to circle some tracks with as few as 10 shifts per lap. And even if you have a hyperactive left foot, it's unlikely you'll find a course where the KTM becomes more than an effective three-speed—first and fifth can be forgotten.

The Maico likes to be shortshifted, too, but for different reasons. High revs on the 490 are rewarded with vibration and less-than-awesome power. But keep it in the low-rpm range and the Maico becomes the easist to ride of the three. Its bottom-end power is plentiful, smooth and controllable. The muscle comes on so smoothly it can deceive the rider into believing he isn't going very fast—going fast isn't *supposed* to to be that easy. But on the Maico it's that easy because of the bike's broad base of gradually delivered low-end power.

The Husqvarna is at the other end of the Open-class spectrum. The 428.8cc mill isn't going to impress anyone with its brute force. But the CR's power is very usable. And its motor is matched to a six-speed close-ratio gearbox that enables the 430 to be ridden in a way not usually associated with Open-class motocross. The Husky is meant to be revved and shifted only when it reaches its peak. It isn't that the Husky won't pull from the bottom, for it actually produces a deceptively hefty amount of low-end power. But compared to its near-500cc competition, the Husky motor isn't a torquer. Riding the 430 to make the most of its assets means you have to rev higher and shift later than on the other bikes.

Even though the CR surrenders horsepower to the KTM and the Maico, its rear suspension is the top choice of the three. Single shocks might be the wave of the future, but right now the motocross world still is in transition, and a well-designed twin-shocker, like the Husqvarna, can work better than a single-shock system. And in this case, it does. Both KTM and Maico are in the process of refining their all-new single-shock systems.

The bugs in the Maico's Alpha Control aren't severe. Early in the test we experienced harsh bottoming, but Maico informed us of an update that consisted of an additional high-speed compression-damping washer being installed in the shock. After the modification, which Maico dealers will do for any early '82 Corte & Cosso shock, the machine was much smoother. The Maico still bottoms too often, but it never hits with enough impact to scare the rider or cost time in a race. Heavier riders might have more trouble, though, because Maico offers no optional springs.

Fork action on the 490 was excellent. Maico is one of the few companies that still recommends air pressure in the fork. We played with different pressures and found 12 to 14 pounds in each leg seemed to work best on a wide variety of terrain.

We spent much more time trying to dial-in the KTM's suspension. The 495 has a tendency to sag in the rear but at the same

The European Open-Classers: Which Will Win?

time feel hard on sharp bumps. More preload helped our machine in tight turns, where the KTM's geometry wasn't as badly affected by the low-riding rear end, but it didn't eliminate the harshness. The KTM's Fox Factory shock was modified halfway through the year, going to single-stage compression damping. But the problem seems to be more in the progression curve than in the shock. It starts at too low a ratio for the 450-pound-rated spring, and then climbs steeply. The result is a bike that is too soft during the first half of its travel, causing it to ride in the harder zone of the curve on both small and large bumps. The KTM works best over a rapid succession of large whoops, where the upper half of its travel is put to use. The settings we used were 9.5-inch set length on the spring, nine clicks from the hardest rebound setting and the number-four compression damping.

We also spent time tuning on the KTM's fork. It worked well stock, but not as well as the others, seemingly because of too much compression damping. We tried lighter viscosity fork oil (5-weight) and the two bottom holes in the damper rods were enlarged to two millimeters. We also replaced the stock progressively wound springs with optional straight-rate Fox Factory springs. When all was done, the Marzocchi fork was better, but still not in the same league with the Maico or Husky forks. Like the rear end, the KTM's front seems to work best in a straight line over large,rolling bumps, but the fork doesn't keep the wheel on the ground securely through turns or on sharp-edged holes.

While the Maico and the KTM were in the pits being adjusted and readjusted, the Husky was being ridden. No experimental stuff here, since the 430's suspension works as delivered. Heavier riders did feel the CR was soft until a stiffer spring was installed then agreed it was the best of the three.

The Husky also is the lightest of the bunch—and it feels it. The Maico and the KTM are the class heavyweights and their heft can wear a rider down. But even though the Husqvarna is the lightest, it feels the clumsiest in turns. With its long wheelbase and 30.5-degree rake, the Husky favors stability more than agility. The Maico also has a long wheelbase and is equally stable through the straights, but it turns almost effortlessly. In loose, powdery corners, a twist of the Maico's throttle will send the back out in a smooth, controllable slide and give you plenty of warning when the limit is being approached. And on hard ground the Maico communicates with its rider, telling him exactly how much traction is available. But it is a slow-steering machine. Last-minute decisions and line changes aren't well received. As long as the turns are well planned, the Maico remains the class easy-steering king.

The KTM is capable of turning more sharply than either of the others. The 495 has a very steep rake and the shortest wheelbase of the three. But the sag in the rear suspension dulled the KTM's potential turning ability. That, combined with the stiff fork and the explosive powerband, made the KTM a difficult machine to ride, although it still turned in some of the quickest lap times. It also was the most reliable machine in the test. The Maico broke a spoke, cracked a rim and had a rear brake that was so poorly matched to the hub that it barely worked until we sanded down the high spots—and then it worked only marginally. The Husky we tested earlier this year proved to be very unreliable, but this 430 was better. Only its muffler came apart on the last day of testing. European machines have a reputation for requiring heavy maintenance, but a season of racing shouldn't be difficult on any of these three.

Choosing a winner between these bikes, however, *is* difficult. It's like deciding what flavor of ice cream is best—all of them are different and everyone has a favorite. For us, though, the Maico tastes best. Even though it doesn't have the best suspension or the most power, it is the easiest and most fun bike to ride. And on the track, if riding is fun, then winning will be easy.

—Ron Lawson

Continued

Maico 490 vs. Suzuki 465: The Final Showdown

• By now, you should have only one unanswered question about the weapons used in Open-class moto-warfare: Who makes the best one in the entire *world*? As you have just read, Maico's Alpha 1 490 is the king of the Euro-crossers; and as concluded in our All-Japan Open MX Shootout of three months ago, Suzuki's RM465 is the Oriental Open bike most likely to succeed. So it's only logical to wonder which of those two winners is *The* undisputed Open-class World Champion—as far as production motocross bikes are concerned, at least.

Well, we did more than just wonder about it. We kept the winning Suzuki from our April comparison, refurbished it to insure that it was fully representative of that model, then ran it head-to-head against the three European bikes in general and the 490 Maico in particular. From that confrontation emerged a winner, one that may or may not surprise you, depending upon whether your preconceived notions about such matters are steeped in Old World tradition or founded in New Wave technology.

Even we were a little surprised, however, to learn that the Suzuki is faster than the Maico, despite its 23cc handicap. The RM is much quicker-revving than the heavy-flywheeled Maico, and its top-end and mid-range power exceeds that of the 490 by a healthy margin. Only down in the lower rpm ranges does the Maico manage to out-motor the RM, although that superior grunt can be a significant advantage when the traction is somewhere between lousy and non-existent. In those conditions you can just stick the Alpha 1 in a tall gear and lug it around at a brisk, competitive pace, whereas the quick power of the Suzuki tends to spin the rear wheel and require a bit more shifting.

One reason why the RM accelerates faster than the Maico is that at 234 pounds, it weighs 14 pounds less. The Maico's relative heft isn't so noticeable when comparing it to the other Eurobikes (the Husky weighs just 236 pounds, but its extremely slow-steering and longish wheelbase make it *feel* heavier than that) and doesn't make it cumbersome to maneuver; but it is a real factor when up against the RM, a bike that handles more like a slightly overweight 250 than it does like a typical Open-classer.

Then there's the suspension. Right out of the crate, the Suzuki's simply *works*—and at both ends. The Maico's suspension needs considerable fiddling to get it optimized; and at best, it never handles most types of rough terrain as well as the Suzuki's well-balanced system. We found, for example, that we generally could accelerate the RM over a lot of whooped, cobby terrain, whereas the Maico usually couldn't do much more than maintain its speed over the same stuff. But because the RM has just a trace of nervousness in its handling mannerisms (the bike seems short and the front wheel always feels a little light), the Maico was marginally more stable in the fast, rough sections.

Suzuki's RM465, Open-class racing's shortest distance between Point A and Point B

Specifically when those two points are the start line and the checkered flag.

What's more, the Alpha 1 offers the world-famous Maico steering for your turning enjoyment, allowing you to carve through turns with the precision of a brain surgeon, even when you're so tired you can't remember your own name. The Suzuki is a pretty impressive turner itself, though, that bends around corners like it had power steering; but its front-wheel-light feeling causes just enough of a sensation of imprecision while turning to give the edge in that department to the Maico. Only in certain low-gear, hairpin turns does the lighter RM hold any steering advantage over the Maico.

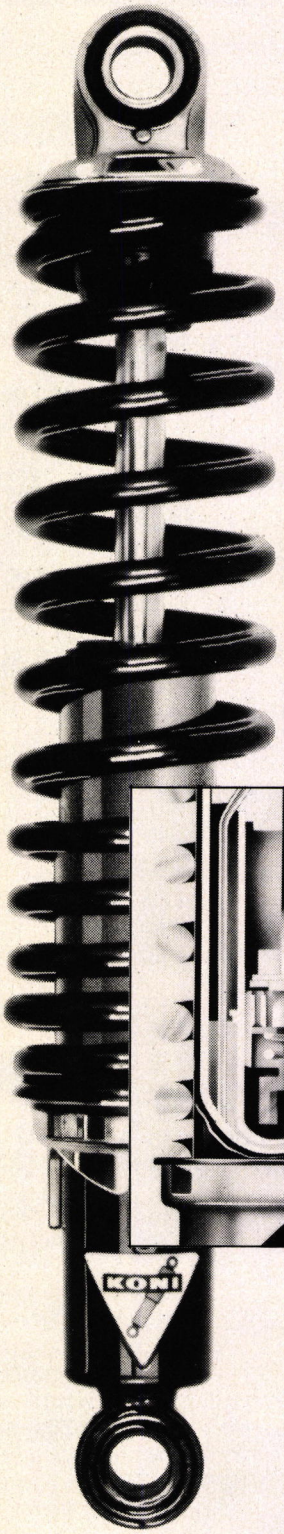
In just about every other respect, however, the Suzuki steals the show. For one, it always has brakes, which on the Maico seem to come and go with great irregularity. The RM also shifts more precisely, its clutch has an easier pull and, thanks to its reed-valve induction (the Maico is a piston-port engine), it carburetes more cleanly at any combination of throttle setting and rpm. And all that's needed to fully race-prep a new RM is to paste some numbers on its plates and dump some premix in its tank (and, for harder surfaces, change tires). But the Maico is a different story, calling for some minor re-engineering before everything operates acceptably. Among other things, you have to sort out the suspension, get the brakes to work by filing the shoes until they make full contact with their respective drums, and grind, file or shim sundry bits of hardware until they work smoothly and/or don't bang into something else.

So when you add to all that the fact that the RM costs $500 less, and that its parts are cheaper and easier to find, the cold, hard facts are conclusive: Overall, for the average rider on the average track, the RM465 is a better motocross racer than the 490 Maico. You won't go wrong with either bike, obviously; but if you want every possible advantage on your side, you ought to slide behind the bars of an RM465. Maybe you're not the Open-class Champion of the World, but it is.

—Paul Dean

Continued

KONI



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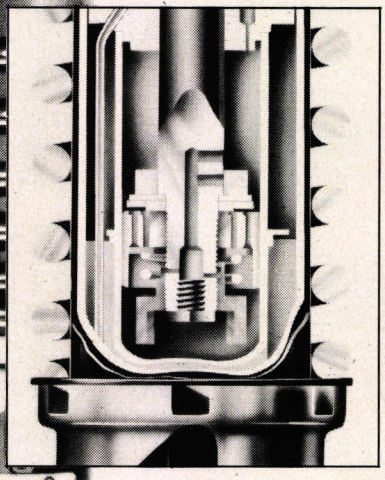
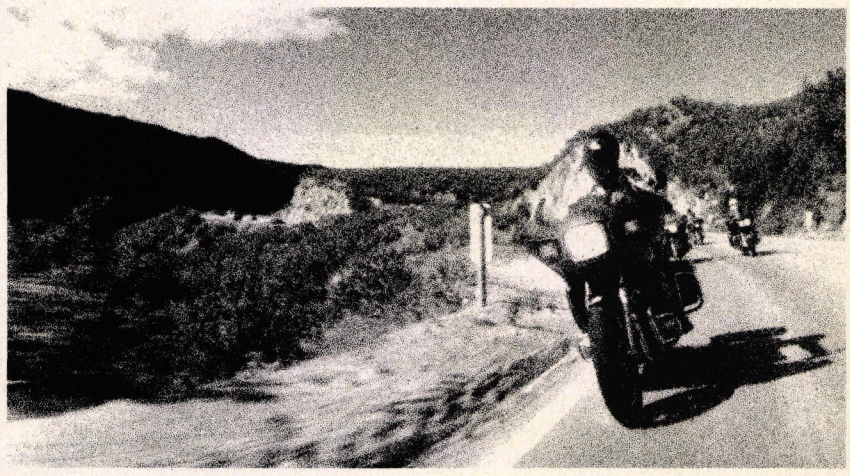
On short hops or in the long run, Koni motorcycle shocks are known for superior performance. For street riding or family touring the precision workmanship is obvious in better handling and road feel. Triple rate progressive springs maintain ride height and provide consistent comfort regardless of the load. Adjustable damping compensates for eventual wear. Koni shock enthusiasts say that even after a long day's ride you "still feel good".

But don't take our word for it. Ask a shock dealer to let you examine a Koni shock. Look at it. Hold it. See how precisely it is made . . . the strong, even welding. Notice that all critical components are machined from solid stock. All valve springs are Swedish music wire. You know you are looking at quality. Indefinable? Yes. But obvious for people who appreciate the best.





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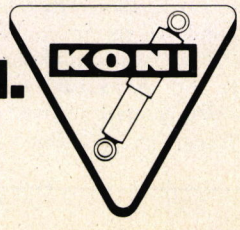

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Koni America, Dept. U, P.O. Box 40
Culpeper, VA 22701 703/825-4543

Ride Review

• Like Lawson, I, too, think that the Maico is the best all-around Open-crosser available from Over There, owing to its precise steering and D-9 Caterpillar-class low-rpm power. And my second-place vote goes to the Husky, with its unerring stability and bump-dissolving suspension. But if I had to spend *my* almost three grand on one of these racers, I'd ignore the results of this test and buy the last-place finisher, the KTM. And then I'd spend a lot of my time and more of my money to get the chassis working to my liking—all just so I could enjoy the KTM's utterly *awesome* motor any time I so desired.

You can't fully appreciate why I've become so infatuated with this engine if you've not ridden a 495 yourself. It lunges down the straightaways like something that's just been shot out of a nuclear cannon, all the while taking your breath away and stretching your arms like you were some sort of giant human Gumby. And until you experience that yourself, it's hard to understand why I fell in love with the engine the first time it scared the hell out of me. Which was, not coincidentally, the first time I turned open the throttle.

I probably wouldn't win any more races on my ideal KTM than on anything else, but that's beside the point. Because on a bike this fast, losing can be just as thrilling as winning. *—Paul Dean*

• Try as I might, I couldn't pick an overall winner in this Open-class shootout. Sure, there were things that each bike did well, but none of them combined enough good features to make it stand head and shoulders above the others.

The Maico was notable because it was the best compromise of the trio. It has a strong and usable motor, good suspension and a stable, yet quick-steering chassis. But is feels slightly heavy on the track.

KTM's 495 also is not a winner, because despite its God-awful-fast motor, it doesn't yet have the suspension to take the white rocket to victory. It also needs some work on its brakes before I could win races on it.

That leaves the Husqvarna, but I couldn't even call the 430CR an overall winner, because its motor is definitely outhorsepowered by the other two. But I could learn to ride it like a 250, and use the Husky's excellent suspension to make up ground on the others. And I could outbrake everything else with the most progressive—if not the most powerful—brakes in motocross.

On certain days and certain tracks, each one of the Eurocrossers could have just what it takes to win. But on those remaining days and tracks, each bike has too many compromises to insure victory. *—David Dewhurst*

CYCLE GUIDE SPECIFICATIO

Maico Alpha 1 490

IMPORTER:	Maico West, 110 East Santa Anita Avenue, Burbank, California 91502
SUGGESTED PRICE:	$2720
ENGINE	Type ..... two-stroke vertical single Port arrangement ..... one piston-controlled intake, four transfers, one bridged exhaust Bore and stroke ..... 86.5mm x 83.0mm Displacement ..... 487.8cc Compression ratio (uncorrected) ..... 12.0:1 Carburetion ..... one 40mm Bing slide/needle Air filter ..... washable oiled foam element Lubrication ..... pre-mixed fuel and oil Starting system ..... primary kick Ignition ..... internal-rotor magneto CDI Charging system ..... none
DRIVETRAIN	Primary drive ..... dual single-row chains; 1.857:1 ratio Clutch ..... wet, multi-plate Final drive ..... #520 chain (5/8-in. pitch, 1/4-in. width); 4.000:1 (56/14) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.713	20.152	3.9
II	1.976	14.678	5.3
III	1.504	11.172	7.0
IV	1.204	8.943	8.8
V	1.000	7.428	10.5

SUSPENSION/ WHEEL TRAVEL	Front .....air-spring, 41.8mm stanchion tube diameter/ 11.6 in. (295mm) Rear .. Alpha Control, 48-way adjustable rebound damping, 13mm spring preload adjustment/11.5 in. (292mm)
BRAKES	Front ..... drum, single-leading shoe Rear ..... drum, single-leading shoe, rod-operated
TIRES	Front ..... 3.00 x 21 48M Metzeler Moto Cross M21 Rear ..... 4.50 x 18 70M Metzeler Moto Cross M22
DIMENSIONS AND CAPACITIES	Weight ..... 248 lbs. (113kg) Weight distribution ..... 47.2% front, 52.8% rear Wheelbase ..... 58.5 to 59.6 in. (1485 to 1513mm) Seat height ..... 38.2 in. (970mm) Handlebar width ..... 33.8 in. (858mm) Footpeg height ..... 17.0 in. (432mm) Ground clearance ..... 13.1 in. (334mm), at engine cradle Steering head angle ..... 28.5 degrees from vertical Front wheel trail ..... 4.96 in. (126mm) Frame .... tubular chromoly steel, double front downtubes Fuel tank ..... plastic, 3.2 gal. (12.0*l*), including 0.8 gal. (3.0*l*) reserve Instrumentation ..... none
PERFORMANCE	Top speed (observed) ..... 79 mph (127 kph)
WARRANTY:	none
AVAILABLE COLOR:	red only

All weights and measurements are taken with machine unladen and fuel tank empty

KTM 495 MC

KTM America, Inc., 1906 Broadway, Lorain, Ohio 44052

$2831

Type ..... two-stroke vertical single
Port arrangement ..... one reed-valve-controlled intake, four transfers, three booster transfers, one exhaust
Bore and stroke ..... 92.3mm x 74.0mm
Displacement 494.6cc
Compression ratio (uncorrected) 9.6:1
Carburetion ..... one 40mm Bing slide/needle
Air filter ..... washable oiled foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... internal-rotor magneto CDI
Charging system ..... none

Primary drive ..... straight-cut gears; 2.548:1 ratio
Clutch ..... wet, multi-plate
Final drive ..... #520 chain (5/8-in. pitch, 1/4-in. width); 3.714:1 (52/14) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.500	23.664	3.3
II	1.600	15.145	5.1
III	1.167	11.046	7.0
IV	0.950	8.992	8.6
V	0.778	7.364	10.5

Front ..... air-spring, 40mm stanchion tube diameter/11.3 in. (288mm)
Rear ..... Pro Lever, 36-way adjustable rebound damping, 8-way adjustable compression damping, 25mm spring preload adjustment/12.1 in. (307mm)

Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, straight-pull cable-operated

Front ..... 3.00 x 21 48M Metzeler Moto Cross M21
Rear ..... 5.10 x 18 Metzeler Perfect Cross

Weight ..... 247 lbs. (112kg)
Weight distribution ..... 46.7% front, 53.3% rear
Wheelbase ..... 58.4 to 59.5 in. (1483 to 1511mm)
Seat height ..... 37.5 in. (953mm)
Handlebar width ..... 33.7 in. (856mm)
Footpeg height ..... 16.4 in. (417mm)
Ground clearance ..... 12.5 in. (318mm), at engine cradle
Steering head angle ..... 27.5 degrees from vertical
Front wheel trail ..... 4.80 in. (122mm)
Frame ..... tubular chromoly steel, single front downtube
Fuel tank ..... plastic, 2.6 gal. (10.0*l*), including 0.7 gal. (2.5*l*) reserve
Instrumentation ..... none

Top speed (observed) ..... 85 mph (137 kph)
none
white only

Husqvarna 430CR

Husqvarna Motor Corporation, 4935 Mercury Street, San Diego, California 92111

$2805

Type ..... two-stroke vertical single
Port arrangement ..... one reed-valve-controlled intake, four transfers, one booster transfer, one exhaust
Bore and stroke ..... 86.0mm x 74.0mm
Displacement 428.8cc
Compression ratio (uncorrected) 11.1:1
Carburetion ..... one 38mm Mikuni slide/needle
Air filter ..... washable oiled foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... internal-rotor magneto CDI
Charging system ..... none

Primary drive ..... straight-cut gears; 1.795:1 ratio
Clutch ..... wet, multi-plate
Final drive ..... #520 chain (5/8-in. pitch, 1/4-in. width); 4.417:1 (53/12) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.357	18.686	4.1
II	1.706	13.523	5.8
III	1.300	10.306	7.4
IV	1.043	8.272	8.3
V	0.880	6.976	11.0
VI	0.778	6.166	12.4

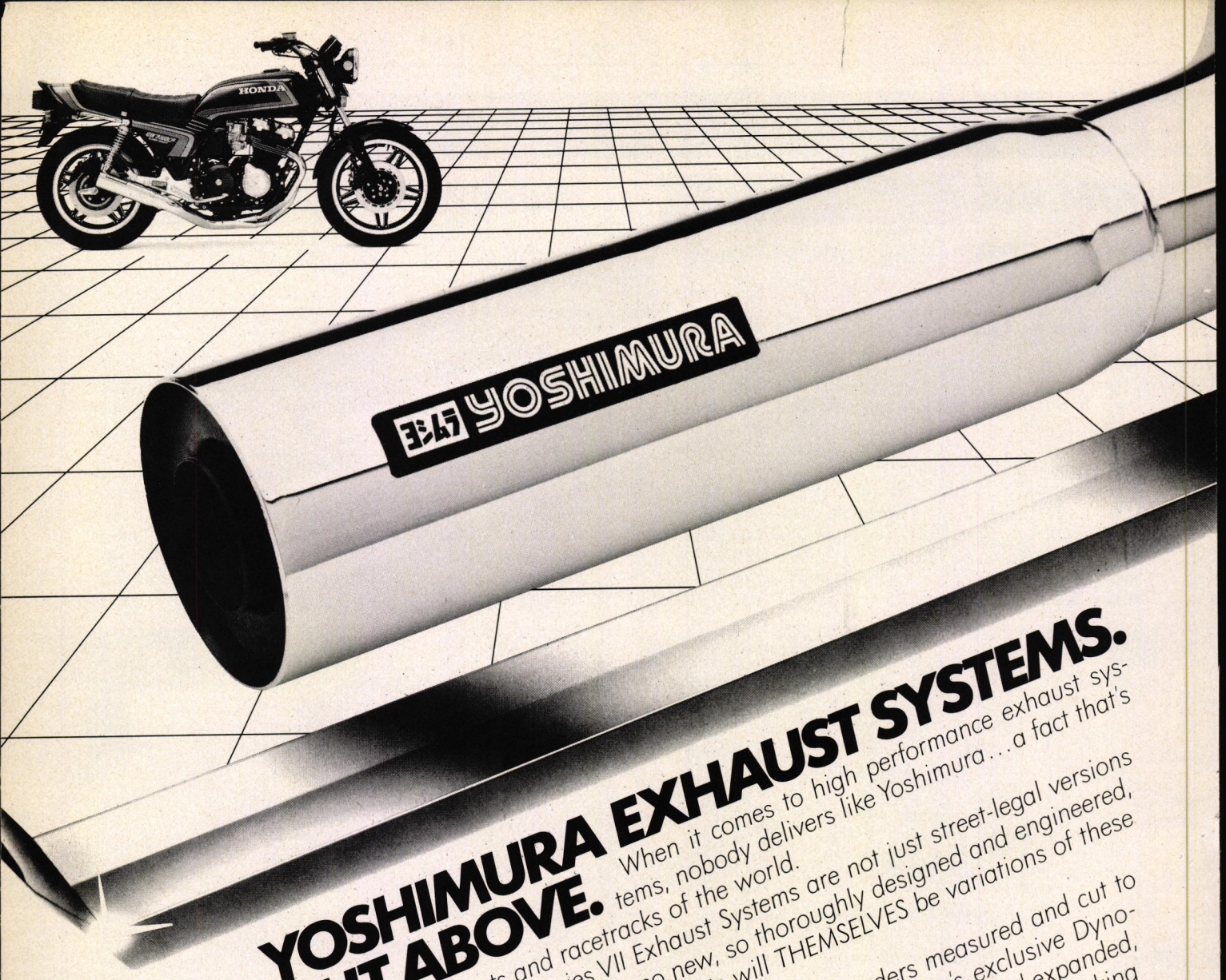
Front ..... air-spring, 40mm stanchion tube diameter/11.8 in. (300mm)
Rear ..... 8-way adjustable spring preload/11.3 in. (287mm)

Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, rod-operated

Front ..... 3.00 x 21 Trelleborg Motocross Deep Grip T544
Rear ..... 5.00 x 17 Trelleborg Ten Masters Motocross T744

Weight ..... 236 lbs. (107kg)
Weight distribution ..... 46.2% front, 53.8% rear
Wheelbase ..... 58.5 to 59.3 in. (1486 to 1506mm)
Seat height ..... 38.0 in. (965mm)
Handlebar width ..... 34.0 in. (834mm)
Footpeg height ..... 13.8 in. (351mm)
Ground clearance ..... 12.5 in. (318mm), at engine cradle
Steering head angle ..... 30.5 degrees from vertical
Front wheel trail ..... 5.98 in. (152mm)
Frame ..... tubular chromoly steel, single front downtube
Fuel tank ..... aluminum, 2.0 gal. (7.5*l*), no reserve
Instrumentation ..... none

Top speed (observed) ..... 85 mph (137 kph)
30 days, motor and frame only
Burgundy Red



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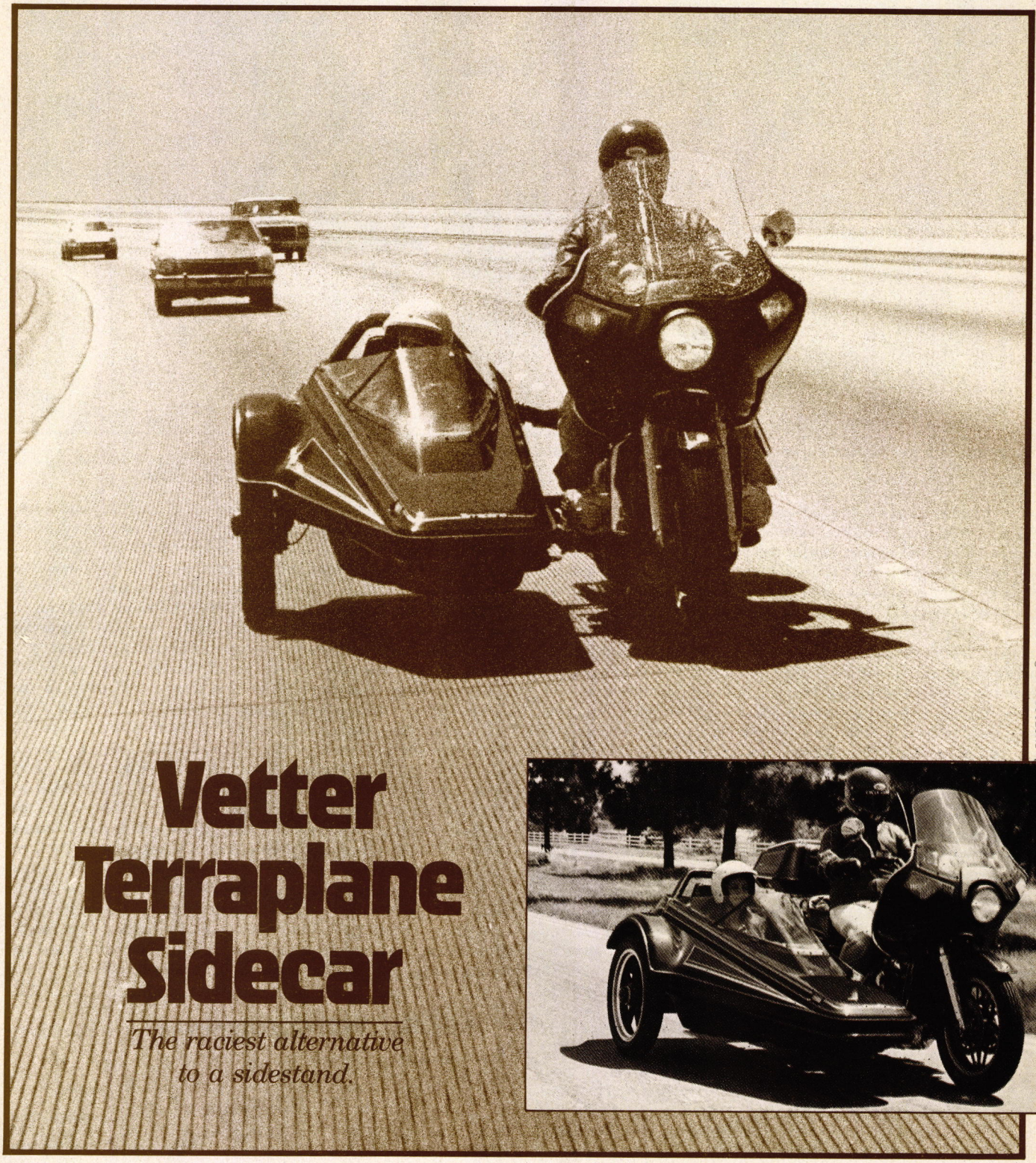

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Vetter Terraplane Sidecar

The raciest alternative to a sidestand.

• Sidecars have been in deepening eclipse in America since the Thirties. Relegated to a splinter-group netherworld by the combined forces of economics, tastes and technology, they have remained since then the fringiest of motorcycle fringes. But all that could be changing. Ironically, the sidecar's very newfound novelty might even now be bringing about a renaissance. And if that rebirth actually is in progress, the Vetter Terraplane will have been a large part of the process.

The potency of the Terraplane isn't due so much to its design—although it is different—as to its designers. Vetter Corporation is a powerful force in American motorcycling; it has the clout of not only its legions of brand loyalists, but also of its bank account. So for Vetter to get into sidecars means, inevitably, high visibility and renewed interest in them in general and in its own sidecar in particular.

To non-sidecar folks, the Terraplane will seem much like any other sidecar, except racier. In type and layout, only a few details of the Terraplane belie that; it's all fiberglass, the two major hull sections

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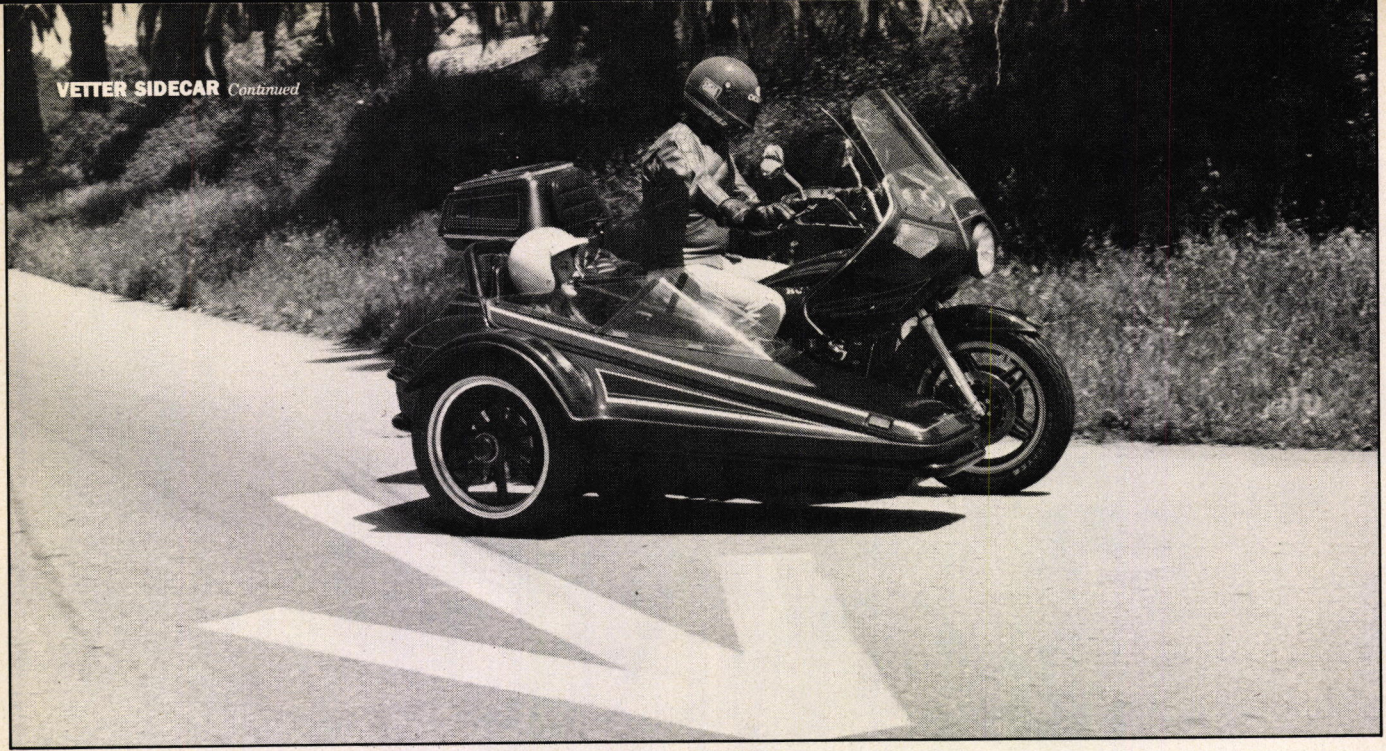


Terraplane in sidewall-scuffing cornering mode, escorted by Honda GL1100

Hard left turns are easy, but going right requires a subtler touch to keep the rig from becoming a Tilt-A-Whirl.

joined boatlike along a horizontal seam. They're supported by a large-diameter steel tube frame that loops up around the passenger's headrest and also provides a mount for the Vetter Trim Grip.

The Trim Grip is really the centerpiece of the Terraplane's design; actually nothing more elaborate than a hand-operated turnbuckle bolted at one end to the sidecar and the other to the bike, its job is to vary the "lean-out" of the solo, a feature made necessary because the added weight of the car causes the whole rig to pull to the right under acceleration and to the left during power-off. Most rigs have the motorcycle leaned outward a fixed amount (usually between 1.5 and three degrees) so that the machine goes straight ahead at "average" speeds and with an "average" load in the sidecar; but Vetter's idea is to give the driver (one *drives* a sidecar) the ability to instantly vary the lean-out while riding, depending on solo-sidecar loads and speeds.

Most of the Terraplane's raciness comes via its sharply raked nose—and Vetter was able to sketch those shapely lines because of the car's unique access system. To get in, you slip a retaining rubber clamp off of its hook on the inner, bike-side hull and lift virtually the entire top of the sidecar. It flips up on a long piano hinge, and you simply step onto the sidecar floor from the front. Two restraining straps keep the lid from tilting so far that the three-piece plexiglass windscreen cracks against the fender. Then you slip into the bucket seat, tighten the non-inertia-reel seatbelt and close and latch the car's top section. You're ready to Terraplane.

The $2495 that Vetter wants you to give one of its dealers to get into that seat buys more than just a crocodile nose and a funny door. Behind the folding, locking seatback is a huge trunk, for instance. And you get a nylon cover that will keep rain, leaves and road grime out of the car. Then there's the single taillight on the outside, and an independent hydraulic braking system for the third wheel which is activated by a separate, foot-operated pedal that sits right beside the motorcycle's brake pedal. But what your twenty-five hundred bucks mostly gets you—at least according to purist doctrine—is trouble.

The way the purists figure it, the Terraplane violates just about every item of sidecar design faith. Take the snout. They think that there is too much sidecar in front of the third wheel—and that, they say, could cause trouble on lefthand turns or rough roads, because the nose might ground easily. And the Terraplane's *piece d'resistance*—the Trim Grip—isn't even considered a real mount by the purist, because to him, it isn't rigid, and conventional sidecar thinking is that to be safe, a sidecar must be mounted rigidly with at least four mounts. Including the Trim Grip, the Terraplane has three mounting points. Bluntly put, this purist view of the Terraplane holds that, under hard use, the thing just won't stand up; it'll thrust weird forces into the bike, flex its mounts too much, break them and drag the nose in turns. And finally, that the Trim Grip probably won't work.

Any device as fully equipped with controversy as the Terraplane cries out for a serious test, so we devised one as serious as we could. A trip from Los Angeles to Anchorage, over the infamous Alaska Highway, would give us the wide range of road types, varied conditions and sheer abuse that would answer the charges against the sidecar.

The Terraplane is available to fit a wide variety of bikes (see specifications), but we chose to bolt it up to a Kawasaki KZ1100A for the Alaska trip. We also rode one affixed to a Gold Wing around town. That setup came courtesy of Pacific Coast Honda/Suzuki in Lomita, California. Our installation on the KZ required discarding a front engine-mount plate and using a Vetter substitute with a Heim-joint mount, swapping a few KZ bolts for Vetter equivalents, but little serious fiddling with the bike. Wiring the Terraplane's taillight into the bike's electrical system was just as easy. Because each sidecar comes with the entire hardware set needed for each bike and the instructions to use it, set-up is not a problem.

However, post-set-up fiddling we found to be absolutely necessary, since in its fresh-from-the-crate state, the rig suffered wheel-waggling and uneasy cornering, and it required enormous steering effort in left-hand turns. A certain amount of tinkering is in order with any change as drastic as adding a sidecar, though, and the modifications we made

VETTER TERRAPLANE

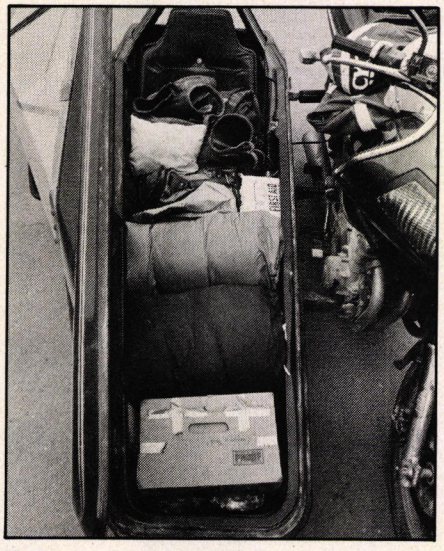
Manufacturer: Vetter Corporation
Rantoul, Illinois 61866
Tel: 217-893-9300

Category	sidecar, street
Suggested retail price	$2495
Construction	fiberglass hull, steel tube frame
Weight	190 pounds
Suspension	single trailing-link, single spring/shock, adj spring preload
Wheel and tire	Lester alloy wheel, Carlisle 2.75 x 18 tire
Brake	single fixed-caliper disc, operated by foot pedal mounted on sidecar
Lighting	outboard taillight w/brake bulb
Model application	H-D FXE, Super Glide, Kawasaki KZ1300, KZ1100, KZ1000ST, KZ1000 MkII, Honda CB750 F/K, GL1100, CB900 Custom, Suzuki GS11, Yamaha XS1100, XS850
Colors	Standard: black. Optional: Honda Burgundy, metallic black, metallic silver (add $75 and 3 weeks for delivery)
Warranty	One year

to the bike to accommodate the rig around town weren't really extensive. The first fix was internal; pumping the KZ's Kayaba air shocks up to 55 psi (max: 70) and pumping the fork to its maximum pressure of 25 psi helped a good deal in taming the weight transfer from chair to solo and vice-versa in hard cornering. Similarly, cranking the Terraplane's shock up to max preload helped too—although, since we had to dismount the wheel to do it, the process was not quick. But in all cases we were pleasantly surprised at how straight the rig stopped when simultaneously using both the motorcycle's rear-brake pedal and the sidecar's pedal.

Brake and shock sit inboard of mag wheel

Taming the traditional sidecar curses.



Vettercar does double duty as pack mule

Proof that you can take it with you.

The Trim Grip, centerpiece of Terraplane design

A twist of the wrist adjusts solo lean-out.

Trial runs around Los Angeles with this arrangement proved satisfactory. Vetter suggests in strong terms that a passenger, or 150 pounds of ballast, be carried at all times. After a few brushes with peculiar sidecar habits—the lifting sidecar, which occurs in hard right turns, for instance—we complied. The general opinion during this portion of the test was that the semi-reclined seating position in the Terraplane, the ease of ingress/egress and the carpeted interior of the car made it a nice place to visit. Taller passengers had some problem with helmet buffeting and vibration transmitted through the Terraplane's top frame tube, but that was the most severe complaint we encountered.

We knew serious stuff lay ahead on the unpaved portions of the Alaska Highway, though, so we undertook more drastic fiddling—but to the solo, not to the Terraplane. After adding an aftermarket cruise control, a steering damper based on a VW Bug unit was bolted up to the left fork leg and the left-side engine case guard. Then, the KZ1100's triple clamps (which have very little steering-stem-to-fork-tube offset because of the leading-axle sliders) were swapped for a GPz1100 set (which has considerably more offset because of that machine's inline-axle sliders). The object was to lessen the front-wheel trail, since the sizable self-centering effect caused by the stock longish trail was the chief culprit in hard lefthand steering. The new clamps cut the trail dramatically, and thus, also cut the steering effort. The rig was ready.

In full loaded trim for the Anchorage run the whole rig grossed more than 1200 pounds and handled sluggishly. It took more than 1000 miles for me to stop fighting the rig and learn to use its natural tendencies. Body English helps in high-speed lefthanders, for instance, and learning how to gauge the roll-on point in righthanders (different than when riding a solo), how to apply just a touch of front brake to settle the sidecar wheel, how much to lean into the car—all those developed slowly and, when done chasing an effortlessly cornering solo, infuriatingly.

By the time the second thousand miles had rolled under the rig's three wheels, though, I'd finally gotten used to it, so that when we ran up against the Alaska Highway, my main concern was the rig's tolerance for ruts, rocks and potholes. And 4243 miles after leaving Los Angeles, that concern—along with others—was answered as the Terraplane rig rolled into Squeeks O'Connor's Kawasaki shop in Anchorage.

First, the worst fears and predictions of the purists had been refuted. The Terraplane's mounts had not loosened or broken, nor had they caused any trouble with the solo. At the end of the brutal AlCan, the rig steered exactly as it had at the beginning. The long snout had never grounded, neither in turns nor on rough road. Except for the inevitable rock chips and filth, the sidecar looked as it had in Los Angeles.

The Trim Grip also had survived its doubters. By following the technique of setting the cruise control, dropping my right hand back and cranking counterclockwise by feel until the rig steered straight, hands-off, the constant pull on the left handlebar (common with cars) was lessened, and long stretches of Interstate were made much less debilitating. The only drawback to the Trim Grip's function was the extreme lean-out angle sometimes required for straight tracking. It often placed me on the highside ridge of the KZ's seat rather than in its soft bucket.

Our questions weren't so easily answered. Compromises demanded by the rig included the inevitable sidecar curse; in exchange for the grace of arcing a solo through the twisties, the sidecarist gets a three-wheeled struggle, and the Terraplane, despite its ingenious Trim Grip and racy looks, was no different from any other sidecar in that respect. Fuel economy suffered as well; at times, the KZ1100 (tested at 36-41 mpg by CYCLE GUIDE) dropped to 25 with the sidecar, and its 4200-mile average was 29 mpg.

Little things, too, became annoying with the Terraplane. Checking the KZ's oil window, for example, required using a mirror. And because the rig is so wide (about six feet), it couldn't snake through traffic like a solo. Further, parking demanded new skills of the driver, since pushing more than half a ton of sidecar uphill is neither fun nor easy.

The sum of these compromises was not, however, great enough to outweigh our enthusiasm for the Terraplane. For a man with a family to build into his riding life, or for someone with a need for real cargo capacity, the sidecar in general and the Terraplane in particular offer some very attractive options. Chances are that anyone with a similar set of problems to solve—or just a yen for the different—will find the Terraplane satisfactory. Over thousands of miles of abusive testing, the Terraplane performed exactly as advertised, refuted its critics and did valiant work as both human-hauler and pack animal.

And even if you're not interested in a moto-burro or a tour bus, there *are* reasons to be interested in the Terraplane. First, no device on the road is even within yelling distance of being as eye-snagging as a big, fast literbike bolted up to a Terraplane. And second, no other device will give you the same ride; it is different, and in the end, an experience that every serious enthusiast could find room for in his logbook. Vetter has made it all very easy, not only because of its warranty, its service and its parts availability, but by adding one feature shrewdly designed into the system.

The Terraplane mounts up to the solo fairly quickly, see. But it *dis*mounts even faster.

—Steve Thompson

PRODUCT EVALUATION:

Thurlow Deerskin Jacket

"Supple" is suddenly an understatement.

•The black-leather cliché that motorcyclists have had to live with or live down is not totally eyewash. A casual look at a half-dozen or so passing riders is all that's needed to confirm the stereotype of the motorcyclist as a creature swathed in formless, slab-sided cowhide. Maybe even a glance in your own riding-gear locker says the same thing.

There *are* alternatives to looking like an extra off the set of "West Side Story," though—and plenty of reasons to try them. Not the least of which is the desire for a riding jacket that doesn't require three months of active break-in before it starts to fit you instead of making you conform to it. Which is as adequate a starting point as any to describe a Thurlow deerskin riding jacket.

The jacket shown, a Thurlow model 59S, is a classic design, with two zippered slash pockets and a belted waist. It's lined in gray satin, has an inside pocket, and has two side straps that allow for adjustment at the waist and hips. The lower back section is slightly tapered and is cut about two inches lower than the front, yielding perfect coverage whether the rider is bolt-upright or tilted into a motocrouch. An action back allows full arm extension without any binding across the shoulders, yet the jacket won't bunch up when you aren't stretched forward and reaching for hand controls. The zippered sleeves on the 59S (a no-charge option from the standard snap cuffs) keep the jacket snug all the way down the forearm to tuck inside a gauntlet, and the shirt-type collar has concealed snaps that keep it from flapping.

But as well-thought-out as the appointments and options of the Thurlow jacket, as well-tailored and as well-sewn a garment as it is, these aren't the things that make the 59S so special. It's the deerskin itself. The hides Thurlow uses are so elastic that break-in is confined to the time that it takes to break into the shipping carton the jacket arrived in. "Supple" is suddenly an understatement.

Aside from suppleness, the major claim for deerskin is that the leather "breathes" better than steerhide or cowhide, making it more comfortable over a broader temperature range. After months of wearing the Thurlow jacket, hot and cold, under rainsuits and cold-weather gear, behind fairings and in the windstream, I see no reason to dispute the claim. The Thurlow 59S is the most comfortable riding jacket I've ever worn. As soon as I put it on, I felt as if it had been tailored specifically for me. And everyone who tried it on shared the same experience.

Optional zipper keeps sleeve snug

Function that's not just off the cuff.

PHOTOGRAPHY © 1982 VIC HUBER

Thurlow's longer-in-back styling, side straps and action back make it a classic

And the leather makes it feel like a second skin.

Of course, Thurlow *will* custom-make a jacket, if one's needs require it. A charge of $30 over the standard price of any Thurlow garment covers the cost. And in addition to the 59S ($235), there's a similar jacket, the 47, that has a mandarin-type snap collar and zippered sleeves. There also are Thurlow deerskin jackets for women, including one with a gathered waist and no belt at the bottom. Deerskin pants and chaps also have been added to the Thurlow line. The riding skins can be ordered in saddle tan, cedar, a dark brown and the inevitable black. To round out the look, Thurlow is still making the deerskin gloves that it's been selling for years, in those same colors plus a natural tan.

You can get more information on deerskin riding gear by writing Thurlow Leatherworld, Dept. CG, 4807 Mercury Street, San Diego, California 92111.

—Larry Works

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GS-450GA SUZUKIMATIC

It's totally new. A hot-performing mid-size bike with the luxury of a semi-automatic transmission. Introducing the 1982 GS-450GA.

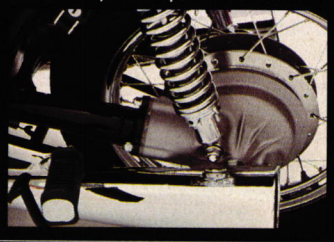
A 4-stroke DOHC engine with crossover exhaust system offers quick, strong acceleration without shifting. And, the 2-speed Suzukimatic transmission provides a low gear for even better acceleration under heavy load. Plus, there's the advantage of Suzuki shaft drive for the smoothest ride going.

A few more conveniences: Low 29.1" seat height, electric starting and full instrumentation.

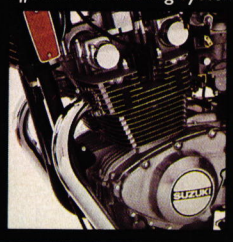
Suzuki's 1982 GS-450GA: Feature for feature, there's no comparison.

2-speed Suzukimatic transmission: An efficient torque converter makes riding easy and smooth.

Suzuki shaft drive: Without a doubt the smoothest, most lash-free shaft drive available.



Potent 4-stroke DOHC engine: Features a highly effective oil cooling system.



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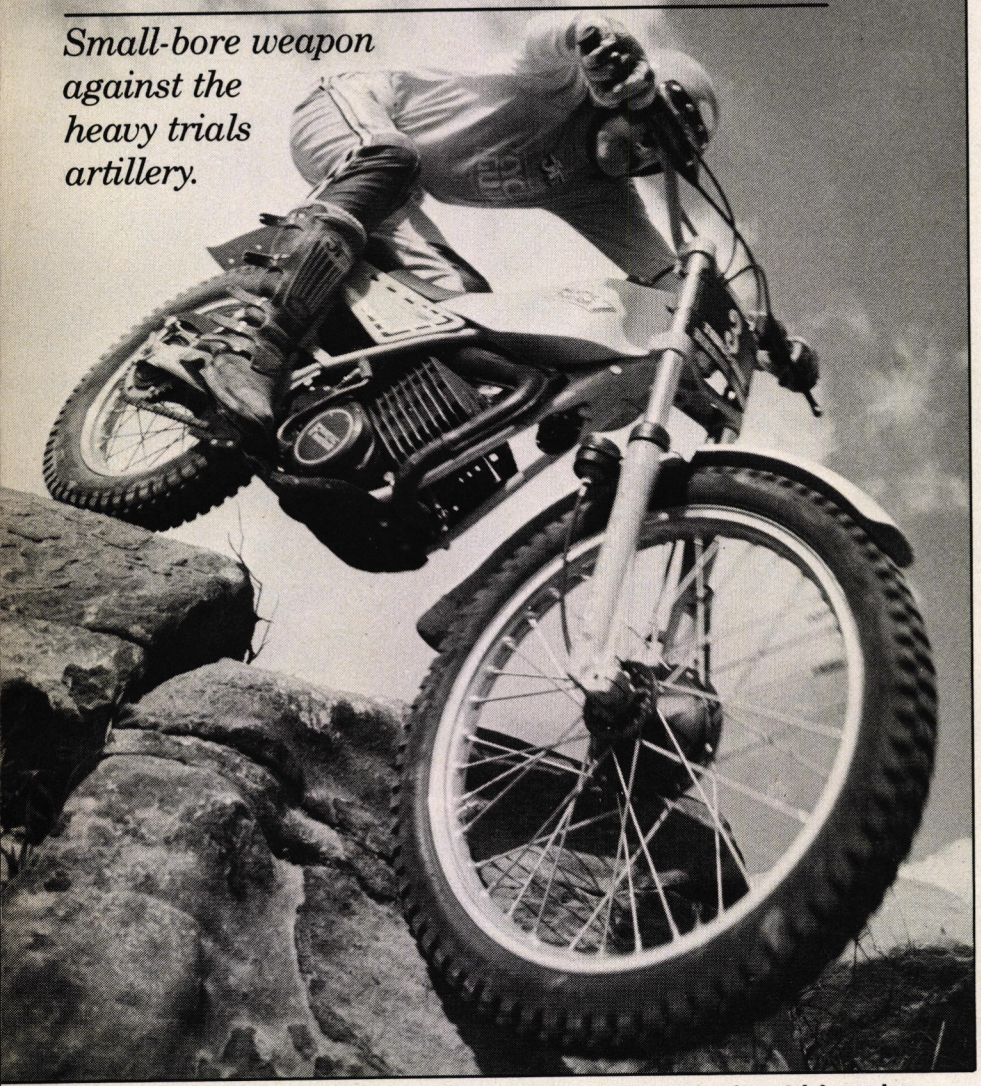
MINITEST:

Fantic Trial 240 Professional

Small-bore weapon against the heavy trials artillery.



PHOTOGRAPHY © 1982 LEN WEED

Fantic isn't a common name here and 212cc isn't a common size for a trials engine

But despite that, the 240 Professional performs uncommonly well.

• Trials experts might consider a down-sized motor like the one in Fantic's 240 Professional no better than a BB gun at a bear hunt; able to get you into more trouble than it can get you out of. That's because tiny trialers never have had the bottomless reserve of low-speed grunt considered essential to haul both bike and rider out of almost impossible situations.

But despite its BB-sized piston (the 240 Professional's actual displacement is only 212cc), the otherwise full-sized Fantic churns out enough low-speed torque to make even the most skeptical expert think twice about the perfect size for a trials engine.

The Italian-built Fantic doesn't use any mechanical magic to produce so much power from its pint-sized single. The massively finned cylinder has typically mild trials port timing for its piston-controlled intake, four transfers and single exhaust port. Even the enormous flywheel weights bolted to the righthand end of the crankshaft—there to smooth out the power pulses and permit low-rpm plonking—can be found on every trials bike.

But for all its conventional design, the Fantic 240 churns out a remarkable amount of torque. It doesn't have the off-idle chug of a 350 Bultaco Sherpa, but the 212cc Professional comes closer than many full-sized 250s. In fact, all that hampers the bike in tight sections is a set of six unusually wide-spaced gear ratios. Sometimes the perfect ratio isn't available in tight going, but the Fantic still pulls through. Those wide ratios also make the Fantic nicer to ride between sections than most trials bikes. With a wide selection of ratios and a strong motor, the Fantic even makes a pleasant trail and woods bike.

The 240 also is unusual in that it starts more easily than most trials mounts. The 62mm piston and 10.5:1 (uncorrected) compression don't offer much resistance, but it's the forward-kicking starter that makes the difference. Forward-kick starters aren't new, but they aren't used on many engines. The Fantic can be prodded into life no matter what angle it sits at. Even on the steepest downhills, where other bikes must be rolled to level ground, the 240 is easy to start.

By building an exceptionally light engine, Fantic was able to increase the size and strength of its frame tubing without producing an unusually heavy bike. As a result, the 240 Professional is claimed to be stronger than some of its notoriously flexi-framed competitors. The Fantic also steers quite slowly for a small-motored trialer, and it doesn't loft its front wheel without deliberate input from the rider.

The 240 does, however, have a braking advantage over most other trials bikes. The brakes are not very light but they are progressive and powerful—although bone-dry California sections didn't test their wet-weather prowess. But all the rocks and gullies did give the Marzocchi fork and Betor shocks a thorough workout. The suspension managed to keep the excellent Michelin tires firmly on the ground almost all the time.

Not that all these good features make the Fantic perfect. There are still a few basic design flaws that can't easily be fixed by the owner. For one, the typically thin trials seat is a little too tall for easy footing in some sections, and for another, the 240 has less ground clearance than many of its competitors. But despite these problems, the Fantic 240 Professional still has enough good points to make it a winner. And the best point of all is the engine. For while it gives away a little low-speed grunt to its bigger-displacement competitors, the Fantic 240 won't get you into more trouble than it can get you out of.

—David Dewhurst

FANTIC 240 PROFESSIONAL

Importer: TMI
Route 14, Box 259
Cookeville, Tennessee 38501

Category	trials
Suggested retail price	$2379
Engine type	two-stroke vertical single
Port arrangement	one piston-controlled intake, four transfers, one exhaust
Bore and stroke	69.0mm x 56.5mm
Displacement	211.3cc
Carburetion	one 25mm Dell'Orto slide/needle
Gearbox	6-speed
Front fork/wheel travel	6.7 in. (170mm)
Rear shock/wheel travel	5-way adjustable spring preload/6.1 in. (157mm)
Wheelbase	51.5 to 52.2 in. (1308 to 1325mm)
Seat height	31.4 in. (798mm)
Weight	197 lbs. (89kg)
Warranty	none
Available color	red only

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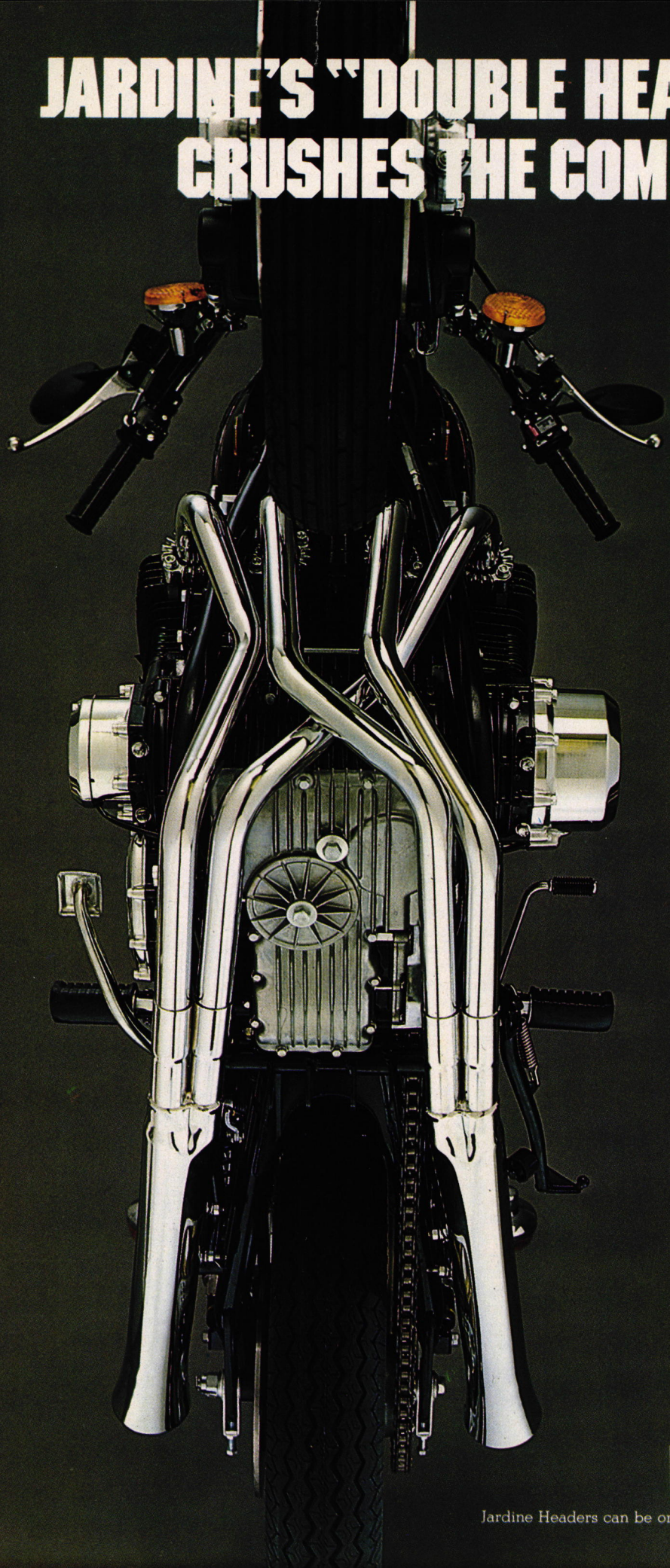

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We used a new, fuel injected Kawasaki Z-1 Classic as the test bike and, after some minor tuning*, we produced a baseline time of 11.97 seconds at 111.51 MPH-stock. We then bolted up the systems, one at a time, and made five passes with each system. The best times are as follows:

JARDINE "DOUBLE HEADER"	**11.54 sec @ 117.89 MPH**
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Brand "R"	11.68 sec @ 114.32 MPH
Brand "W"	11.72 sec @ 113.58 MPH

Lastly, just for comparison, we ran our own 4 into 1 at 11.44 sec and 119.04 MPH—that's PERFORMANCE!

The "Double Header" system features a high velocity 180° firing design for excellent smoothness and throttle response, as well as a balanced look to your machine. The exhaust note is crisp, yet mellow to the ear, and the styling is Jardine sharp. Another plus—our individual pipe design means a better finish and inexpensive repairs if you damage just one tube—you don't have to buy the whole header.

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*All test machines are prepared and ridden by professionals, using proper safety equipment. Documentation and tuning specs are available upon request.

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SR-90 By SLIP STREAMER INC.® A newly designed handlebar mount fairing by Slip Streamer offering maximum wind protection while enhancing your bike's performance and appearance. The sleek clean lines of the SR-90 result from an aerodynamic design and a total weight of less than six pounds deliver positive road handling. The SR-90 is easy to install using a universal four-point mounting system using stock handlebars and fork tubes as mounting points. There is no removal or relocation of stock bars, turn signals or mirrors. (Kawasaki LTD models require turn signals relocated.) The SR-90 fits all round headlight model bikes. Specifications: Width ...24.7 inches, Height... 29.5 inches, Total weight...5.7 pounds. Construction: body... space age ABS, finish...black urethane enamel, Windscreen ...clr. dbl. strength acrylic. Suggested retail price...$129.95.

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PRODUCT EVALUATION:

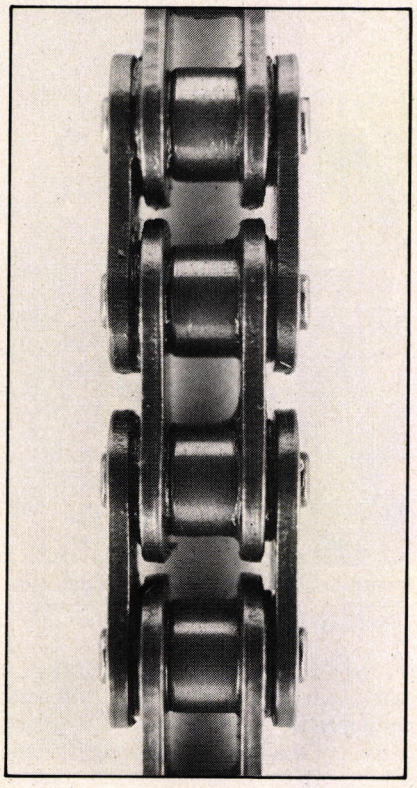
Husky Products O-Ring Dirt Chain

Fighting true grit with synthetic rubber.

• It's a fact of trail-riding life that just one hard ride through mud, sand or most other off-road conditions can transform a shiny new dirt bike into something altogether different. Something well-used and decidedly un-shiny. And the one thing that seems to suffer most in the process is the drive chain, even when it is religiously lubed and adjusted on the trail. After all, a little squirt of oil now and then is insignificant compared to the non-stop barrage of harmful elements that a dirt chain must contend with.

Husky Products (the accessory division of Husqvarna Motorcycles), however, has a sure-fire remedy for that gritty final-drive problem: the O-Ring Dirt Chain. It's nothing very sophisticated, really, just a strong, good-quality drive chain fitted with a little synthetic rubber O-ring where each roller pin passes through the sideplates. Even the master link gets sealed with four O-rings that you slip into place when installing the link on the chain.

Now, there's nothing original about O-ring chains, which have been in use on chain-driven performance streetbikes for several years. The purpose of the O-rings is to seal in a durable lubricant that is installed at the factory during the assembly of the chain, and to seal *out* any contaminants that could get between the critical bearing surfaces and wear the chain out. The promise of all this is greatly extended chain life with a minimum of maintenance. Only an infrequent adjustment is required, coupled with an occasional spritz of chain lube to keep the O-rings from being ground up by dirt and grit.



Neoprene seals between sideplates

O-ring sandwich to go, hold the dirt.

That's the theory, at least. But we wanted to determine how well the O-ring concept held up under the brutality of off-road competition, so we installed a Husky Products chain on a Kawasaki KDX175 and gave it a thorough but representative thrashing. And 600 gruelling miles later—a distance that included one sandy national enduro and two extremely muddy ISDE qualifiers—we had been converted from skeptics to believers. After an initial break-in adjustment at around 20 miles, the chain was almost maintenance-free. It required only five relatively small adjustments in that entire 600-mile period, whereas 10 or 15 larger adjustments would not have been out of the ordinary for a conventional chain.

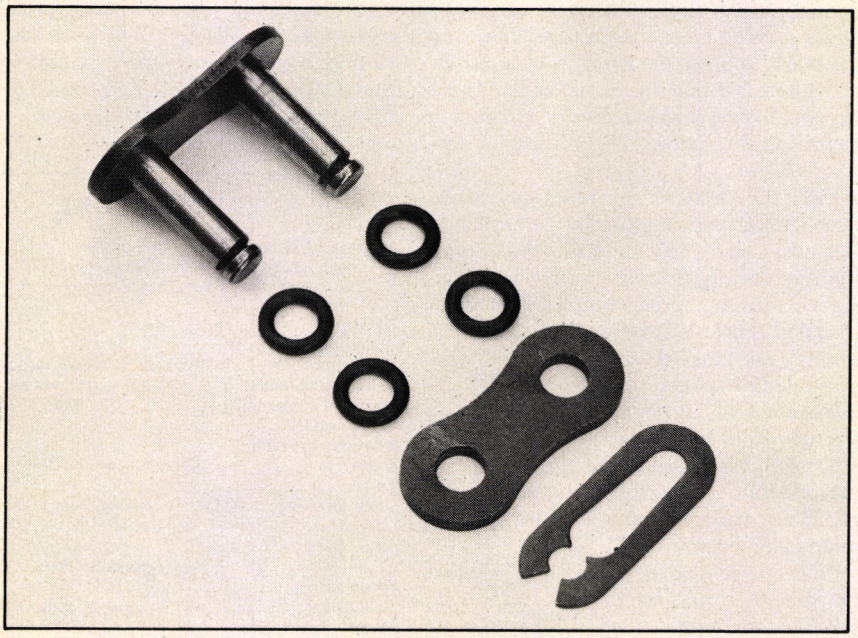
That is all the more impressive when you consider that about half of those miles were spent in axle-deep mud or on gritty, rain-drenched trails. And at that 600-mile mark, the chain still had the bulk of its life ahead of it.

That longevity was no fluke, either, since we've talked to enduro riders who have gotten an entire *season* on one O-ring chain. And eight-time national enduro champ Dick Burleson says he wouldn't leave the start line without one. He even uses one on his 125 Husky, which refutes some riders' claims that the friction between all of those O-rings and sideplates robs small-bore bikes of too much power. Hogwash, says Burleson, and our experiences with the chain say likewise.

Truthfully, the worst thing about the Husky Products O-Ring Dirt Chain is that it's available only in the No. 520 dimension and in just two lengths (112 links for $56.15 and 114 links for $59.63)—although with a couple of $5.54 repair kits (that include a six-link piece of chain, a single spare link and two master links), you could piece together a longer chain.

You also might cringe at the price of the chain, but if you do, you apparently don't know the joy of cruising into an enduro gas stop without having even to *think* about the chain. If you did, you'd know that those prices are cheap. Dirt cheap.

—Paul Dean



PHOTOGRAPHY © 1982 VIC HUBER

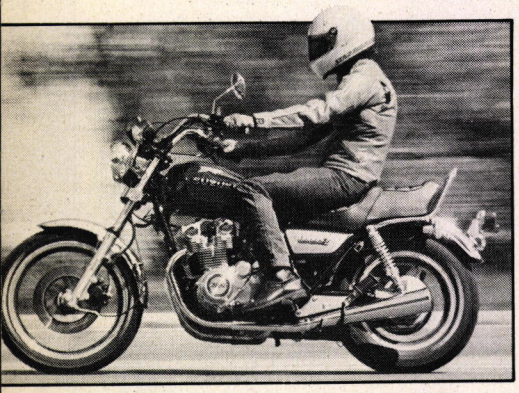
Master link assembly, unremarkable save for its longer pins and four O-rings

A simple but effective way to keep dirt out and lube in.

MINITEST:

Suzuki GS650GL

One custom that's a bold statement, not a whispered suggestion.



Leave the backroads to the Es and Gs

Suzuki's L-model owns Main street.

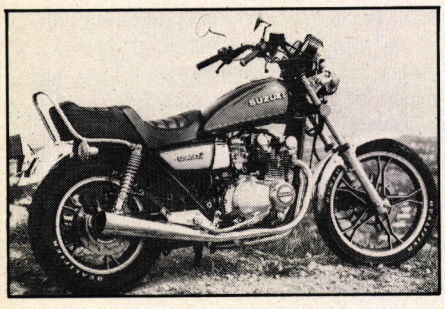
Swept-back bar and stepped saddle dominate the Suzuki's look and feel

The 650GL takes its Saturday-night boulevard cruising seriously.

PHOTOGRAPHY © 1982 VIC HUBER

• You'd be wrong to call Suzuki's GS650GL the most radically styled midicruiser. But while this 650 shafty employs more or less standard mean-streets fashion licks, it *does* stretch them to a fair degree.

For instance, where other factory customs have pullback bars, the Suzuki's bar seems to extend rearward noticeably more than the competition's. And where competing bikes are fitted with fashionably stepped seats, the Suzuki's high-low saddle appears to be the most severely stepped of all. The 650GL's boulevard styling statement is further underscored by generous applications of chrome,



while its leading-axle fork exudes an extended look. From all aspects, the GS650GL reflects a strong commitment to accommodate riders who take their cruising and profiling *very* seriously.

However, what visual pizzaz the 650 has comes at some expense to pure function. If the look is more extreme than most, so too, is the result of that styling. First on the list is the handlebar. Tall, extended bars have taken their share of ergonomic criticism, and the 650's handlebar bears that out. It imposes a posture on the rider that is conducive neither to muscular relaxation nor to precise sport steering. Then, the stepped saddle that is so eye-catchingly bi-level allows very little fore-aft movement. The problem is compounded by the bike's confining seat-to-footpeg relationship, which strains the rider's knees and thighs after an hour or so in the saddle. And the taller the rider, the more pronounced the discomfort, because the Suzuki midicruiser is thoroughly downsized. Every dimension seems scaled to provide big-bike feel for mid-sized riders.

But if the 650GL is deliberately downscale, there are few clues in its engine performance. The bike is extremely quick around town or stoplight to stoplight, with the engine providing short-throw, precise shifting and minimal vibration. Throttle response throughout the engine's rev range is excellent, with no discernable flat spots or bobbles. The DOHC four is also a willing low-speed slogger, pulling strongly from 1500 in top gear and making serious profiling a simple exercise. And for all that, the 650GL can regularly extract 60 miles per gallon, without forcing its rider into esoteric riding measures.

Some unusual riding styles might be called for, though, if you try to push the Suzuki through twistie-bits at speed. The engine is willing enough, but ground clearance becomes a problem. The trick is to hang off to keep the bike closer to vertical, but there again the riding position doesn't help. The H-rated Dunlops stick well in hard cornering, except when the bike's stiff rear end makes the ride a bit choppy.

But for outright corner-stuffing, there are two other 650 Suzukis whose performance profiles are more in line with serious apex-work—though neither of them makes the same bold street-cruiser statement as the GS650GL. But if you're an enthusiast whose passions are bold enough to overlook the GL's shortcomings in high-speed sport performance, that statement—and the GL's profiling prowess—could just be enough.

—Mike Griffin

SUZUKI GS650GL

Importer: U.S. Suzuki Motor Corporation
3251 East Imperial Highway
Brea, California 92621

Category	street
Suggested retail price	$2869
Engine type	four-stroke transverse vertical four
Valve arrangement	double overhead camshafts
Bore and stroke	62.0mm x 55.8mm
Displacement	673.9cc
Compression ratio	9.4:1
Carburetion	four 32mm Mikuni constant-vacuum
Gearbox	5-speed
Front fork/wheel travel	air-spring, 35mm stanchion tube diameter/5.9 in. (149mm)
Rear shocks/wheel travel	5-way adjustable spring preload/3.9 in. (100mm)
Wheelbase	57.3 in. (1454mm)
Seat height	30.0 in. (763mm)
Weight	472 lbs. (214kg)
Top speed (calculated)	123 mph (197 kph)
Fuel consumption	49 to 61 mpg (21 to 26 km/l)
Warranty	12 months unlimited mileage
Available colors	blue or maroon

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Ghibli DESIGN CONTEST

Contest closes September 30, 1982

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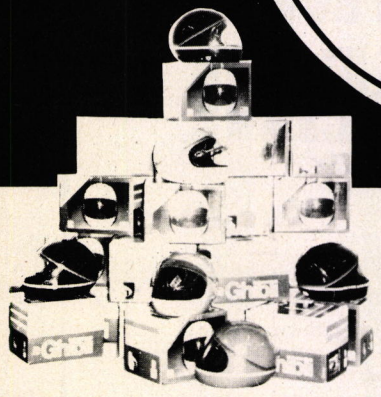
Now here is what you need to do. Make your design on the outlined helmet on this page in any medium you desire, (or you can make it larger if you wish). If after you've completed your first master-piece you feel your creative talent is running at its peak and you want to make another design, go ahead. As a matter of fact you can enter as many designs as you wish.



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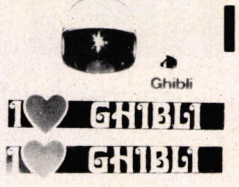
All fifty 1st prize winners will receive a Ghibli helmet (retail value $110.00) in their size and choice of color. Plus all winning designs will be displayed in major trade shows around the country.



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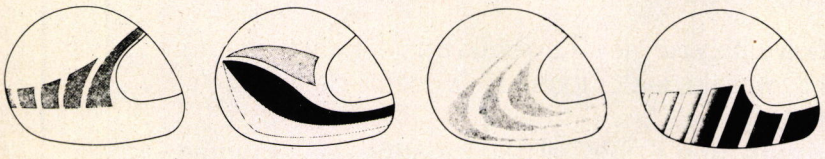

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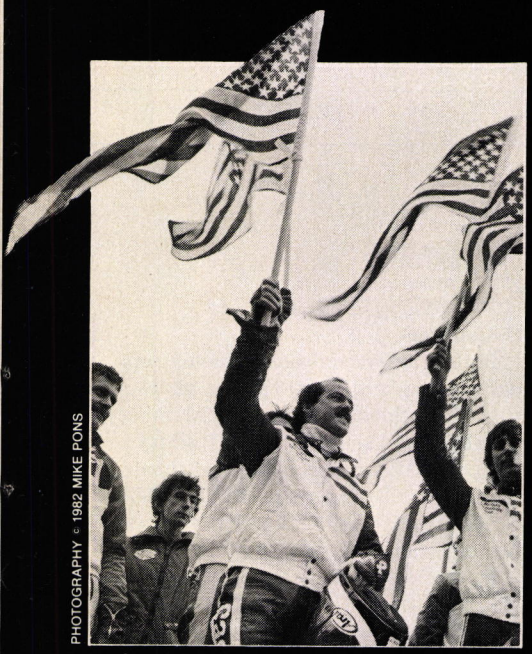
SPORT LINES

Cycle Guide's True Tales of Race Courses, Dark Horses and Machines at Speed

EDITED BY DAIN GINGERELLI

Marlboro Transatlantic Trophy

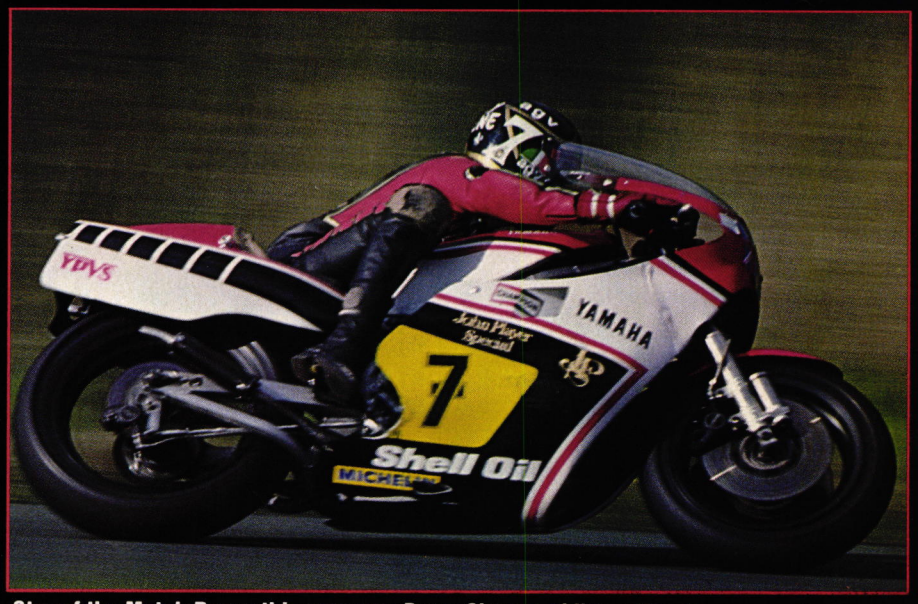
An imbalance of power.



PHOTOGRAPHY © 1982 MIKE PONS

Yanks proudly wave the flag

But failed to hoist it in victory.



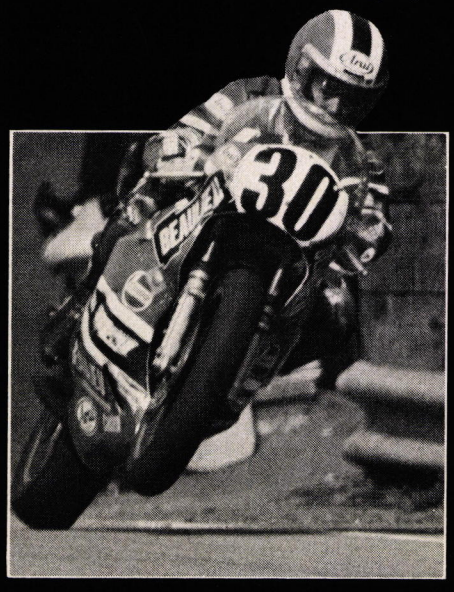
Star of the Match Races this year was Barry Sheene, riding a Yamaha square-four

Playing the odds that seven will get you five; his only loss was at Mallory Park.

• It was a slaughter. The British team soundly beat the Americans in the Marlboro Transatlantic Trophy races, held over Easter weekend. The score was 491 to 313, and it was the worst defeat in the 11-year history of the Match Races.

It was destined to be a rout from the beginning. The American squad was thin on talent, and out-gunned in machinery. Half the eight-man team rode Yamaha TZ750s—dated and cumbersome machinery when pitted against the Suzuki and Yamaha factory bikes the English rode. American Rich Schlachter cooly dismissed the TZs as "Our dinosaurs."

Truly, the only American capable of winning a race was Honda NS500-mounted Freddie Spencer. He rode forcefully during the first heat at Brands Hatch, maintaining a secure second-place behind British team captain Barry Sheene. But on the last lap the Honda's throttle stuck open, ending his ride at the Druids hairpin. The bike was totaled, but Fast Freddie walked slowly from the scene in one piece. American Honda withdrew the entry, and Spencer was scratched from the team.



Singleton sails on his relic-TZ750

The dinosaur proudly raises its head.

All hopes of an American winning a heat left with him, too. Sheene and his Yamaha square-four thoroughly dominated the racing, handily winning five of the six heats. Sheene's only flaw was a slow-speed spill at Mallory Park during the fourth heat. He remounted and finished second.

With Spencer gone, reserve rider Alan Ward was called in to maintain the eight-man American roster. Ward, regrettably, also rode a Yamaha TZ750, and was the third first-year man on the squad, joining rookies Mark Homchick and Roberto Pietri. Homchick had an aging TZ while Pietri opted to ride his own RG500 Mk. 7 instead of the Honda RCB1000. His unfamiliarity with the tracks prevented him from being competitive, though.

So any hope of an American flying the flag rested with Mike Baldwin and his Honda RCB1000. He managed a third in the opening round at Brands Hatch, but for his efforts, the Honda popped a valve, and was never the

Continued page 67

TONY'S TIRE TIPS

Tip no. **10**

Tony Mills, Motorcycle Tire Development Manager
Dunlop Tire Company

TOURING

Q. I plan on taking plenty of extended vacations on my big new Honda Gold Wing Aspencade. What tires are best for full load cross country touring.

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An advantage of bias-belted touring tires is their inclination to resist tread squirm, and that adds up to better mileage.

Keep in mind that while touring, sometimes you can't avoid riding in the rain. That's when you need a tire that really grips the pavement.

And, you'll also want a front tire that's compatible with your rear tire. Look for a design that will give you positive steering and stability at highway speeds.

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The Touring Elite front is the ideal match to the Touring Elite rear with an offset center groove pattern for precise steering and controlled braking. It also features aggressive shoulder blocks for stable cornering, and aquajets and water shedding sipes for confident rainy day riding.

One final feature: the diagonal tread block of the Touring Elite provides the necessary measure of steering control to minimize the discomforting effects of problems created by — rain-groove "wiggle" and steel bridge "shakes".

*NOTE: Inflate your Touring Elite rear tire to a minimum of 36 PSI...for medium to heavy loads use 40 PSI.

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Roger Marshall and Barry Sheene in action

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King Kenny: absent from Match Races

Missing in action.

• Three factors could have changed the outcome of the Marlboro Transatlantic Trophy: Kenny Roberts, Randy Mamola and Eddie Lawson. Their absence, no doubt, reduced the Americans' chances immeasurably.

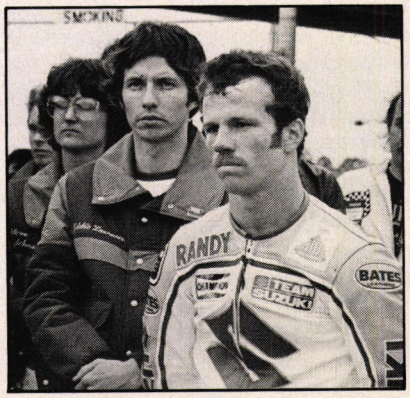
Roberts presence alone is an intangible asset to team morale. But it's his skill with the twistgrip that makes him especially invaluable. In just six separate Match Series appearances, The King leads all participants with 16 wins. Sheene holds second with 13 (eight prior to his 1982 cakewalk).

Mamola is somewhat of a newcomer to the Match Races, but has four individual heat wins. Lawson has yet to compete, but his USA credentials speak for themselves; two AMA F2 championships and he's the reigning Superbike King. Further, Roberts, Mamola and Lawson's 500cc bikes have the speed and handling well-suited to Brands Hatch, Mallory Park and Oulton Park.

But all three riders were restrained from participating in the series due to contractual obligations. Roberts and Mamola were busy testing their bikes for the May 2 Austrian GP, while Kawasaki withheld Lawson in order to save him for the AMA Superbike championship, which it so desperately wants to retain.

So the MTT American effort was not indicative of true USA roadrace potential. Some of the best knee-scrapers in the world do, indeed, eat apple pie and can't resist a good, greasy hamburger. Unfortunately, with the exception of Spencer and Baldwin, the best are signed to factories that prefer to confine their riders to races that bring home the bacon to the company, not hoist the flag for America.

—Dain Gingerelli



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Mamola with Eddie Lawson behind him

Without them, America stood alone.

Continued

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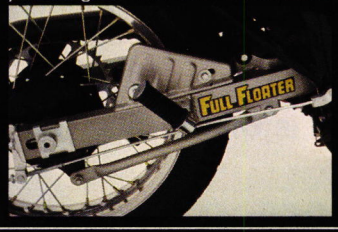

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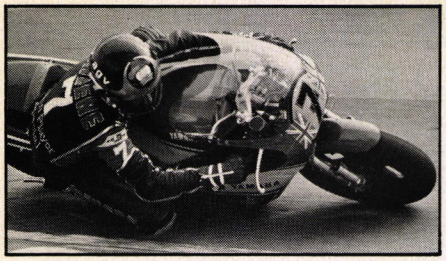

Sheene and the unstoppable Yamaha 500

Heaven-sent to five wins.

Day One: Spencer signs and smiles

Day Two: Spencer is gone.

same again. It finally expired for good in the fifth heat at Oulton Park, as did Wes Cooley's Yoshimura-Suzuki and Pietri's RG. Through attrition and determined riding, team captain Dave Aldana was high-point American, scoring 56 points. Aldana was, in fact, the leading veteran of the team as well, having raced in the inaugural Match Races in 1971. He's missed only two series since—1972 and 1976—and logged more Transatlantic Trophy miles than any other American. But ironically, Aldana never has won a race in the series.

But Aldana and Baldwin couldn't stop the Brits, and they rolled merrily along, consuming points like eight hungry and effective Pac Man vassals. Sheene was tops with 95 points, surpassing Roberts' mark of 93 set in 1974. And while Sheene rolled to five wins, Roger Marshall consistently held second, himself notching the only non-Sheene win at Mallory Park.

The job was made easier for the British, too, because they had better bikes. Sheene had the current lighter, faster Yamaha square-four 500 to pick off the American dinosaurs with, while Marshall and John Newbold rode front-line factory Suzuki F1 bikes. Ron Haslam had his factory Honda 1000 F1 as well. Three of Her Majesty's troops—Bob Smith, Chris Guy and Keith Huewen—helped squelch the Colonials using Suzuki RG500s. Graham Wood had the sole customer-TZ500 in the field, while only Steve Henshaw reported for duty on a TZ750.

The abundance of competitive hardware was sufficient for the hometown lads to easily send the Yanks' TZs to the slaughter house. The dinosaur, the Americans learned, was, indeed, extinct. At least it no longer exists in the British Isles. *—Dain Gingerelli*

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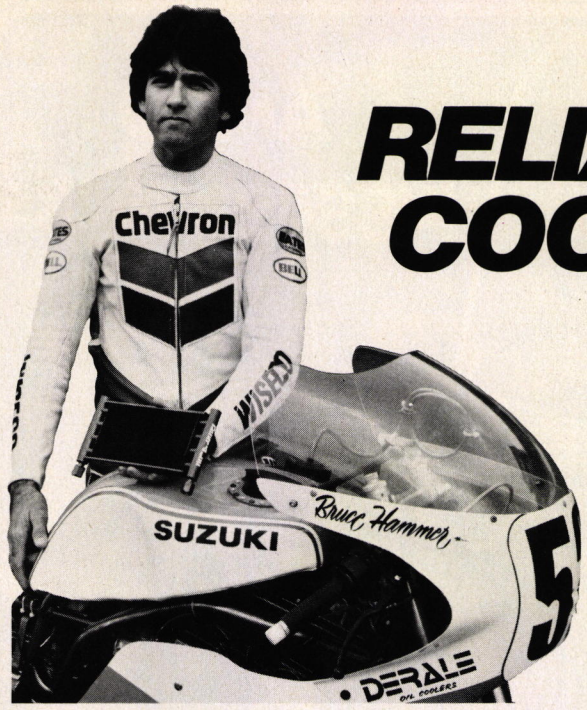

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Bruce Hammer
Team Hammer

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The Russian Roost

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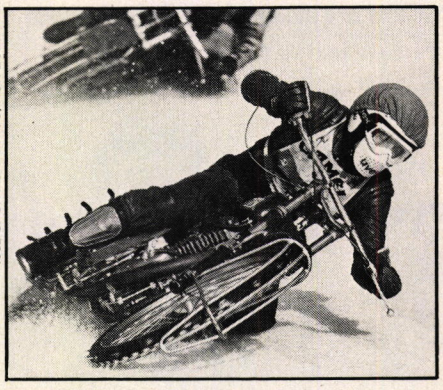

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Anatoly Gladychev through a turn

Sharing inch-long spikes with the ice.

• Russian riders haven't exactly set the motorcycle racing world on fire. In fact, it's safe to say that a Russian won't win the world championship in either motocross or roadracing this year. But when it comes to ice racing, Russians are the masters. Since 1966, only two world titles have been won by non-Russians: The Czechs won in 1970 and again in 1974.

1982 was a typical Russian year on the ice racing circuit, too. A majority of the 16-rider field at the world ice race finals, held in Inzell, West Germany, were Russians. And by the end of the two-day, 40-heat event, Sergeij Kasakov, with his 28 points, was on top. Kasakov's win continues a long-held Russian tradition, highlighted by Gabtraham Kadyrov's six titles and Sergey Tarabanko's four in a row, from 1975 through 1978.

The Russian dominance is remarkable considering the machinery and techniques required. FIM-class ice-bikes are based on dirt speedway racers, using nitro-burning 500cc four-stroke engines. And like their dirt cousins, the ice-bikes have no brakes. Cornering traction for the slick ice comes from inch-long steel spikes that poke out through the tires. The porcupine-like tires can then stab the ice,

Side by side at 80 miles per hour

And hoping the knees won't give out.

Continued

(ADVERTISEMENT)

CARBURETOR GETS 200 MPG!

BY R.C. WEBSTER

WASHINGTON—Establishment of a new world record for fuel economy—an incredible 1,368 miles per gallon achieved in the Shell Motor Mileage Marathon by a special three-wheel vehicle with 90cc engine—has touched off a stampede among car manufacturers and tinkerers to drastically increase the gas mileage of cars.

They are attempting to achieve this by means of the Pogue Carburetor, a device which the Ford Motor Co. has shown can deliver over 200 mpg to an ordinary sedan. This gas-miserly carburetor has never been mass-produced.

The Pogue is covered by several patents issued by the U.S. Patent Office here, but a recent book asserts that the patents are invalid, that anyone can now build the Pogue without legal restraint.

As a result, vendors, parts manufacturers and entrepreneurs are racing to mass-produce this peerless fuel conserver.

The book, *Secrets of the 200 MPG Carburetor,* contains full details, instructions and diagrams on how to construct the Pogue. It states that anyone can build the carburetor, even in a home workshop. Copies are available from Premier Distributing, P.O. Box 404-CG, New York, N.Y. 10019, at $4.95 (plus $1 to cover the costs of postage and handling; total, $5.95).

The Pogue Carburetor is named for its inventor, Charles N. Pogue, now 81 and ailing in a Winnipeg, Manitoba, nursing home. Pogue is making no attempt to prevent others from producing and marketing his invention.

205 MPG

The Ford Motor Co. of Canada, in a test documented in *Secrets of the 200 MPG Carburetor,* proved that the Pogue Carburetor does indeed achieve a remarkable 25.7 miles per *pint*—or 205 miles per gallon.

Allan Wallace, author of *Secrets of the 200 MPG Carburetor,* says the Pogue's gas mileage is not all that remarkable.

He contends that others have invented carburetors with exceptionally high gas mileages, too, but that the American people have been kept in the dark about them by the oil companies in order to preserve gas sales.

To support his assertion, Wallace documents several instances of stupendous gas mileages, including 84 mpg achieved by Ralph Moody Jr. of Oak Hill, Fla., with a Ford Capri, and 100 mpg by Thomas W. Ogle of El Paso, Texas, with a Ford Galaxie.

Wallace says he has amassed enough case histories "to fill a set of volumes the size of an entire encyclopedia." He includes construction details for the most interesting and feasible systems in his book.

"I feel the public has a right to know how to produce its own high-mileage systems," he says. "If enough people are tooling around in 100-mpg cars, the auto and oil industries will have no choice but to offer fuel-efficient carburetors in all production models."

80% FUEL WASTE

Wallace says the average car burns only 20 percent of the fuel it consumes. The rest is lost, unburned, and is emitted through the tailpipe to pollute the atmosphere.

All successful high-mileage carburetors drastically increase the percentage of fuel vaporized and burned. "There is no reason why the average car's 20 percent can't be increased to 80 percent," Wallace asserts.

"The carburetor of today is little changed from what it was 50 years ago," he says. "I'm hoping that my book will spur a change—to the benefit of the nation, the ecology, and the consumer."

To obtain a copy, readers of this magazine need merely send their name and address with $4.95 (plus $1 for postage and handling; total, $5.95) to Premier Distributing, P.O. Box 404-CG, New York, N.Y. 10019.

This book is sold with a guarantee of satisfaction or your money back, and is most enthusiastically recommended.

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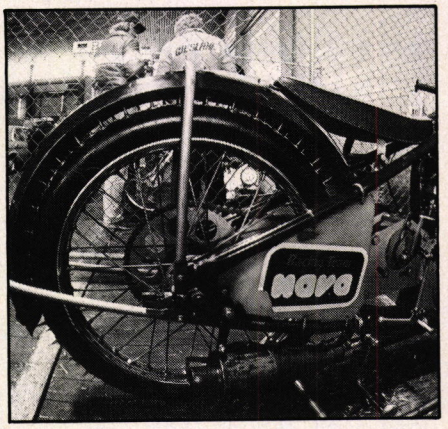

allowing an ice racer to lean his 220-pound bike into a corner. Lean angles are so dramatic that a racer drags his inside knee—itself padded by a strapped-on section of automobile tire—and arcs the turn at over 80 miles per hour. And it all takes place is sub-freezing temperatures.

When compared to American-style indoor ice racing—that allows only 250cc engines and less-lethal sheetmetal screws for traction—FIM-class competition sounds almost deadly. Which probably is why the rest of the world can agree with the Russians on this international affair. Most racers concur: Let them have this one. *—Dain Gingerelli*

A pair of Russians at the semifinals

Traditionally the leaders in ice-dicing.

Continued

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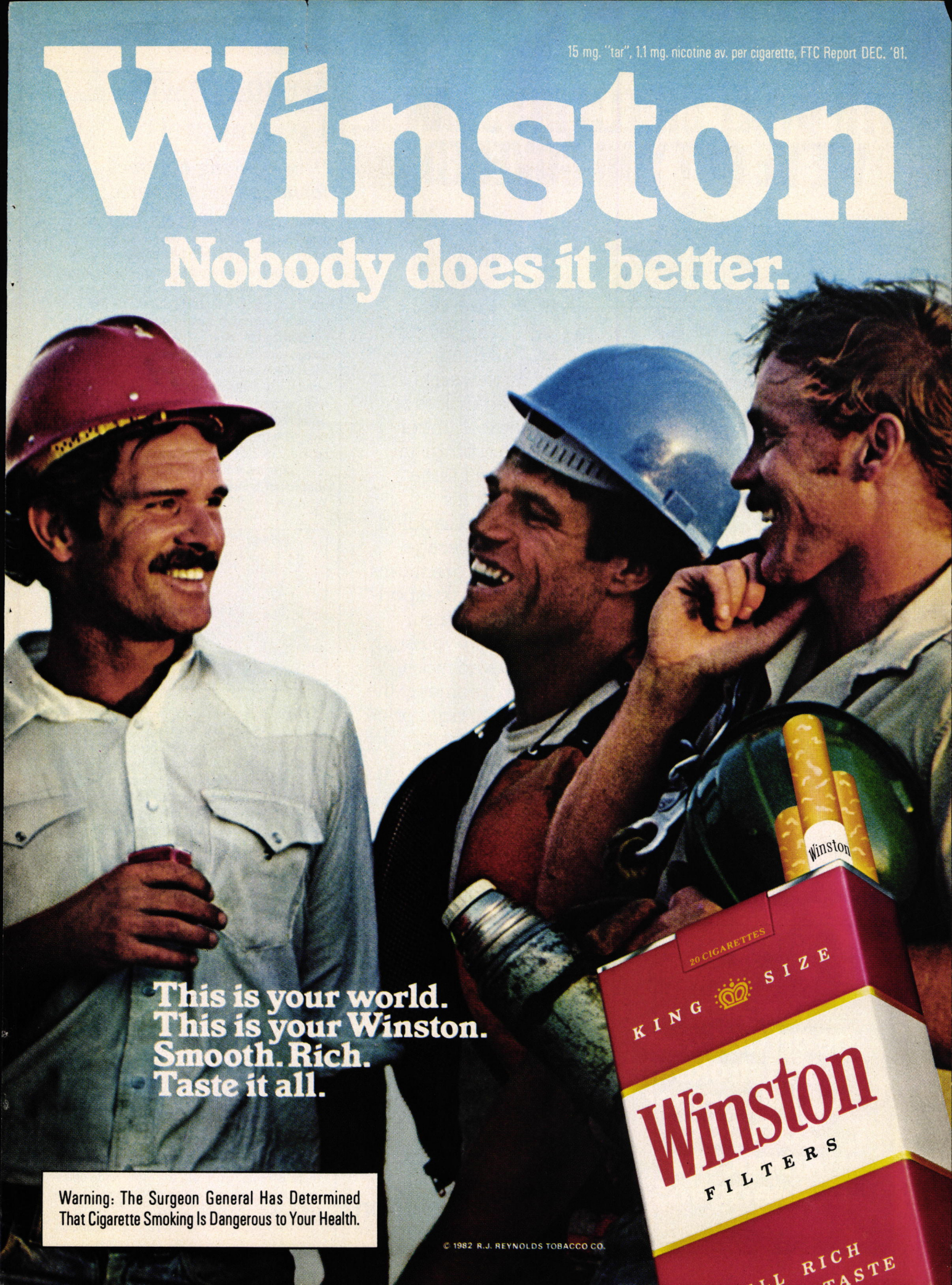

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OFF-ROAD RACING:

Le Touquet

Desert racing becomes fashionable in France.

• American-style desert racing has hit the beaches of Europe. The race is Le Touquet, an off-road event much like American desert racing, but without the desert. In fact, Le Touquet is a beach race. The course begins on the hard-pack beach in northern France, meanders through nearby sand dunes, then back onto the beach. The race lasts three hours, and the rider completing the most laps wins. Kees Van der Veen and his KTM circulated the 10-mile course nine times this year to lead his team to the first four positions.

More than 200,000 spectators attend the race, so naturally the factories pay attention to Le Touquet. KTM, Maico, Honda, Yamaha and Kawasaki had factory-supported teams for the 1982 race held last February.

The factory-team bikes are actually hybrid motorcycles. By mating Open-class motocross engines with enduro frames, the bikes are better suited for the high-speeds on the beach as well as for the low-gear throttle-blipping required through the deep sand dunes. The transmissions essentially have two ratio groupings: The first three gear-ratios are spaced low for the dunes, while fourth and fifth gears are intended for the top-speed runs down the beach. Some bikes have mini-fairings, so the rider can tuck-in and cheat the wind.

A few of the factory teams send well-known riders to Le Touquet. Yamaha assigned bikes to Hakan Carlqvist, along with American motocross stars Danny LaPorte and Marty Moates. Kawasaki fielded bikes for two more Yanks, Gary Semics and former AMA 500cc National champ Rick Burgett. Burgett was the only American finisher, placing eighth.

Le Touquet doesn't rank in world-wide stature with Bol d'Or and the ISDE yet, but it does give off-road racing in Europe grass-roots participation: Most of the riders in the 1200-bike field were privateers. And on a land-starved continent, that's significant. Maybe there is room, after all, for some wide-open-country racing. In Le Touquet's case, it's desert racing, American style.

—Alex Hodgkinson

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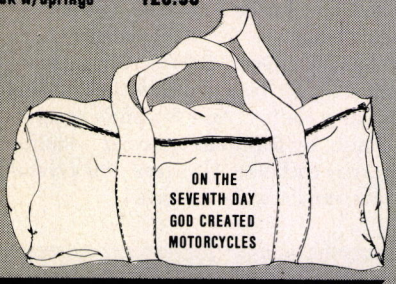

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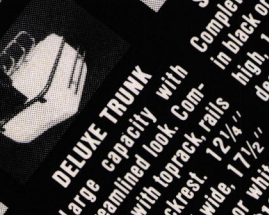

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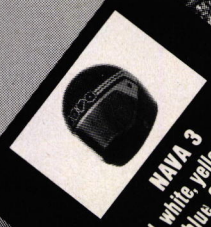

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ROADRACING:

The Argentine Answer

Forget all that you've read or heard about the Honda NS500.

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Argentine GP: inaugurating the NS500

But only after extensive testing.

• There were plenty of questions buzzing through the Argentine GP pits last March 28. A lot had happened in the tight-knit GP community since Marco Lucchinelli won the title in September, then abruptly switched from Suzuki's to Honda's camp.

For starters, people wanted to know if a slimmer, trimmer, Dunlop-shod Yamaha square-four for Kenny Roberts was the answer for KR's fourth title. And Barry Sheene's winter-long comments about fetching the title and bringing it back to the empire raised eyebrows, too.

But everyone drew a blank about the Honda NS500. It wasn't a question so much of whether it would win, but rather, if it would even finish. The bike was brand-new. And new designs, everyone said, aren't the answer to winning in the highly competitive GP circus. While the Honda vee-three two-stroke isn't revolutionary by design standards, it *is* unorthodox.

As in all racing, the race itself held the final verdict. The 79-mile Argentine GP should serve as a barometer for the remainder of the 14-race season. First of all, Roberts won, proving that a lighter bike and new tires make a faster King Kenny. And Sheene's second-place finish, by less than a second, solidifies his Cockney cockiness. He's ready for a comeback, and maybe even the title.

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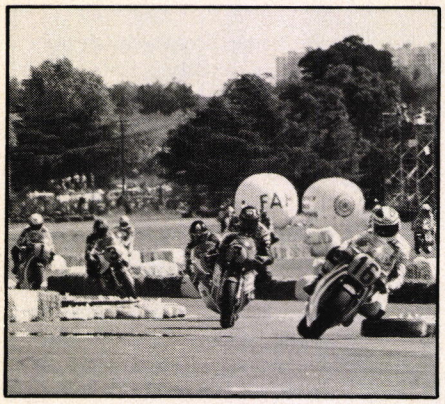


Lap One belongs to Spencer

The initial payoff of testing.

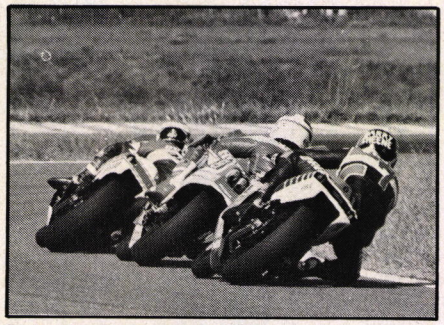
But perhaps the most important news from the Argentine GP was the success of the NS500s. All three team bikes finished. Speculation about the new design is officially over—the vee-threes are, indeed, reliable.

Parading and finishing through reliability, though, doesn't fit into Honda's game plan. The NS was built to put Honda's red, white and blue in victory circle, not just on the finishers column of the race ledger.

The journey to a win, however, begins through testing. Testing, testing and more testing. And so before team riders Freddie Spencer, world champ Marco Lucchinelli and factory test rider Takazumi Katayama lined up on the Argentine grid, the trio had spent literally thousands of miles testing. A month before the race, Lucchinelli rode the triple at a track in Rio de Janeiro, desperately trying to find a flaw and make something break. The bike withstood the trials, so further testing was done two weeks before the GP at Buenos Aires. That session was devoted to fine-tuning the Michelins to the bike and the track. Finally, all three riders again tested less than a week before official practice began.

By race day, Honda had answered all its questions about the bike, except one: Could it win? Fast Freddie didn't wait for the answer; instead he jumped right out to dice with race leaders Roberts and Sheene. The trio swapped the lead, with Roberts finally resolving the finishing order, but barely. Less than two seconds separated the trio at the end of the race. Meanwhile, Lucchinelli and Katayama, on the other two NS500s, were close behind. Lucchinelli finished fifth and Katayama sixth.

Reliability aside, the NS500's Buenos Aires success shouldn't be a surprise. Most of the course's infield section is comprised of tight turns, well-suited to the quick-steering



Roberts, Spencer and Sheene

Two Yamahas make a Honda sandwich.

Honda. Lucchinelli previously had remarked that the vee-three felt and steered much like a 350. Honda race team manager Mr. Oguma reiterated: "The NS500's main feature is maneuverability. We have built a very small and light machine, with a low center of gravity."

Honda's three-out-of-three finish at Argentina—third, fifth and sixth—serves as a lesson in racing: Practice does make perfect. But if you ask anyone in the Honda camp, perfection will come only with a GP win—and the world championship. *—Dain Gingerelli*

Katayama, Spencer and Lucchinelli pose

With other testers beside them.

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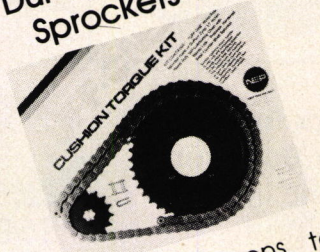

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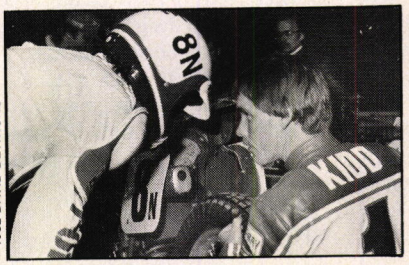
Pit Bits

• Leading the leader: Despite more than 20 Honda entries—mostly XR500s—for the Winston Pro Series Ascot TT last April, a Can-Am thumper ridden by Alex Jorgensen won. Steve Wise had his two-stroke CR480R prepped, primed and powdered for Ascot, too. But Ascot is a faster track than the Houston arena, and so the race failed to be a turkey-shoot for him. He failed to transfer to the main, and watched from the sidelines as teammates Mike Kidd and Mickey Fay rode their faster XR500 four-strokes to seventh and 13th-place finishes. Kawasaki teamsters Eddie Lawson and Wayne Rainey squeezed their two-strokes into the main, with Lawson earning three Winston Pro points while Rainey was shut-out in 15th place.



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Steve Wise listens to champ Mike Kidd

Learning is a kiddin' matter.

• Wise cracks: While interviewed at centerstage-Ascot before the main event, Steve Wise discussed his Daytona venture of a few weeks prior. When asked how he got the F1 ride, which was otherwise available to world champion Marco Lucchinelli, Wise spoke into the P.A. and replied: "When Mario Lucchinelli decided not to run the 200-miler . . ." Mario?

• Add Ascot: Even though Jorgy and his Can-Am stole the thunder, Honda managed a little pre-race hype by presenting Ascot promoter J.C. Agajanian with a Honda FT500 Ascot. The bike's race-name heritage dates back to 1980 when Mike Kidd won the Ascot TT on an XR500. Oddly, though, the Honda thumper's first AMA win occurred the previous year at the Houston TT with Mickey Fay twisting the stick.

• Spring back: Jay Springsteen is back. Having missed the Houston and Ascot TTs, he returned to win the Sacramento Mile, using a homestretch slipstream-maneuver to finish only inches ahead of Ricky Graham. It was the Springer's 30th win, notching for him one more than Kenny Roberts on the all-time AMA Grand National list.

• For the record: Third on the list is Bart Markel (28), followed by Joe Leonard (27), Dick Mann (24), Carroll Resweber (19), Gary Nixon (19) and Gary Scott (18).

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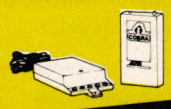

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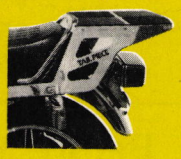

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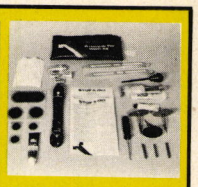

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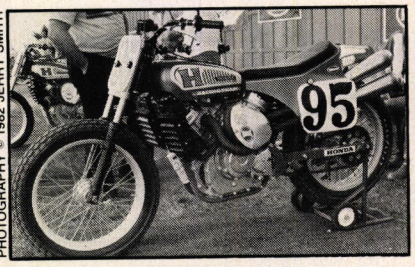
• And Scotty makes three: Harley-Davidson signed Scott Parker to join Jay Springsteen and Randy Goss on the Harley Wrecking Crew. Parker, like Goss, Springsteen and Harley-Davidson, is from the midwest.

• New brew for the Crew: While Parker was busy signing one piece of paper, representatives from Harley-Davidson and Pabst Blue Ribbon Beer were signing another. Pabst will sponsor Parker's XR750 throughout the Winston Pro Series. There's no connection, however, between Springsteen's new sponsors and the draft techniques he used to win the Sacramento Mile.



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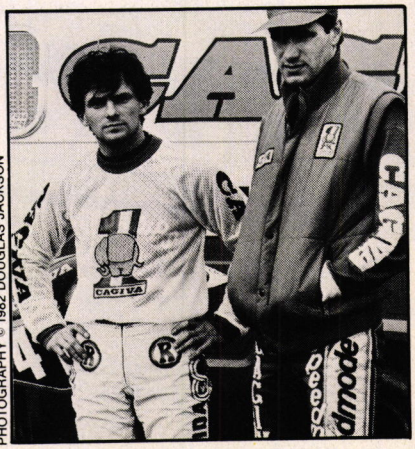
Honda's single-shock NS750

In search of the missing Link.

• And Pearson makes four: Honda had some pen and paper activity prior to the Sacto Mile, too. Scott Pearson now wears red, white and blue Honda colors, and will race an NS750 the remainder of the Winston Pro season, giving the Big H four riders: Pearson, Mike Kidd, Mickey Fay and rookie Billy "The Bullet" Herndon. Pearson promptly obliged his new employer with a regional TT win the following week in Idaho.

• From ink to Link: Pearson wasn't the only new addition to the Honda team. The NS750, yet to be a threat on the WPS trail, now has Pro-Link rear suspension. The bike is still noticeably down on speed compared to the Harley XR750s, but according to sources, the Pro-Link has improved its handling.



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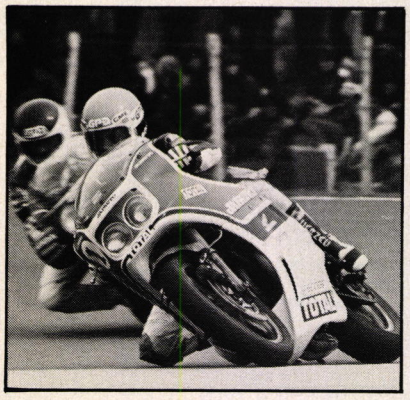
Cagiva's Perfini and Khudiakov

Pilots for the new teapot berm-buster.

• The Italian job: Cagiva engineers have given their 125cc factory motocross bike a little facelift. The tea pot berm-buster has a liquid-cooled engine, single-shock rear suspension and a single front disc brake. The works bikes are ridden by Italian Franco Perfini and Russian Yuri Khudiakov.

• Soviet MX project: The Soviet Union has its own MX project, involving a quartet of Cagiva 500cc motocross bikes and Red riders for the forthcoming Motocross des Nations. In a nutshell, the Russians will be in full force for the September 12 event to be held in Switzerland.

• Hold that in-line: Contrary to rumors, Honda's new vee-four F1 bike won't see service on the FIM manufacturer's endurance race schedule until 1983. FIM rules limit engine displacement for the class to 1000cc, and the engine's crankshaft cannot be stroked. According to sources at Honda, the 750cc vee-four production engine that the FWS1000 is based on can be bored (without increasing the stroke) to a maximum displacement of only 850cc, giving it a 15-percent handicap to most other bikes in the class. So until the 750cc rule is in effect next year, the Honda vee-four will see service only in AMA roadracing—as a one-liter bike.



The trusty Honda air-cooled racer

750cc rule will bring out the vee-four.

• Yamaha on the roll: Graeme Crosby and Yamaha continue to steamroll, this time at Imola, Italy. Croz won both legs of the Imola 200 on his square-four works 500. Second at Imola was world champ Marco Lucchinelli on the Honda NS500. Imola was a non-points race.

• Virago victory: And on the other side of the world another Yamaha found its way into victory circle, too. Billy Scott won the Gardena Gold Cup half-mile at Ascot in April on a Virago-based flattracker.

• Into the twos: Terry Vance, aka Mr. Pro Stock, intends to break the 200 mph barrier with his Suzuki top fueler sometime this season. "And the best way to do that," he says, "is to run the fueler as often as we can." Let's hope there's no fuel shortage this year.

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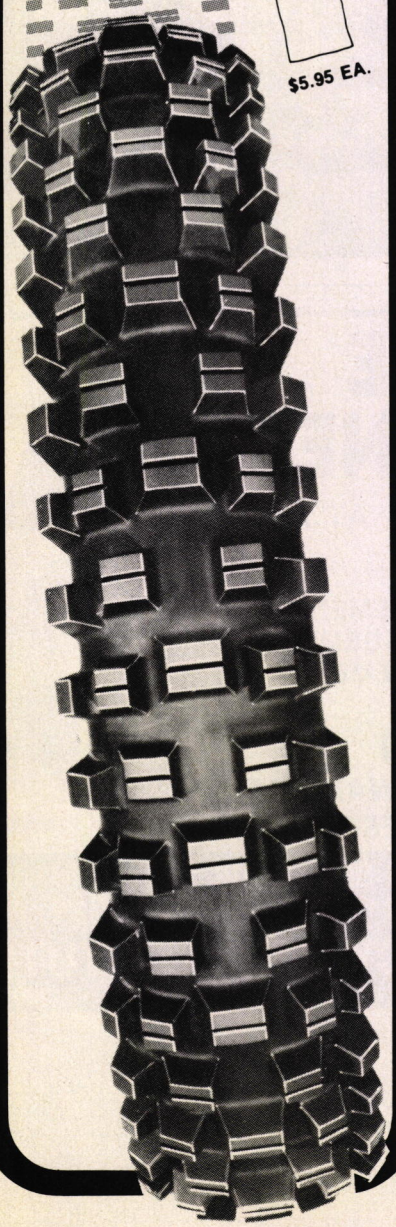
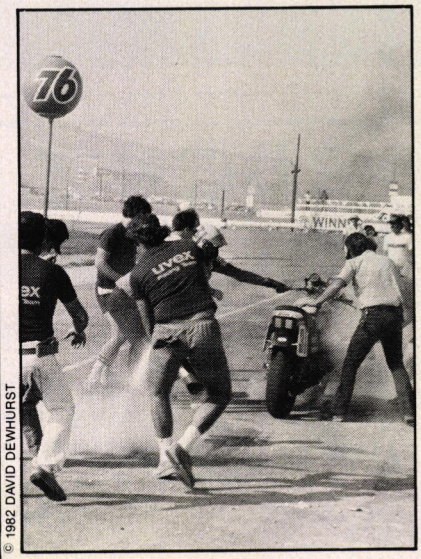


- Off-track: Off-road racing magnate Mickey Thompson now has his own racetrack. Thompson's track is situated on the Pomona Fairgrounds in Southern California. The track is 5/8-mile long, and has eight turns and jumps. Thompson intends to promote only truck and buggie races, but with promoters like Mike Goodwin in the neighborhood, it's only a matter of time before two-wheelers nudge into the act as well.
- The last laugh: During the Riverside Budweiser 500 Kilometer Endurance Race press luncheon, emcee Larry Huffman interviewed several of the riders. As he approached rider Harry Klinzmann about his Racecrafters Kawasaki GPz1000—at the time only the second such bike in America—he asked, "How did you like the GPz1000 that you rode at Daytona?" hoping to get favorable feedback as to the over-the-counter production bike's performance.

Klinzmann, ever the straightforward speaker, replied, "It's quite a bit slower than what I had last year," referring to his older, mileage-laden KZ1000 Racecrafters superbike.

After a bit of laughter, the startled Huffman concluded, "Now, then, after today, who will you be riding for?"



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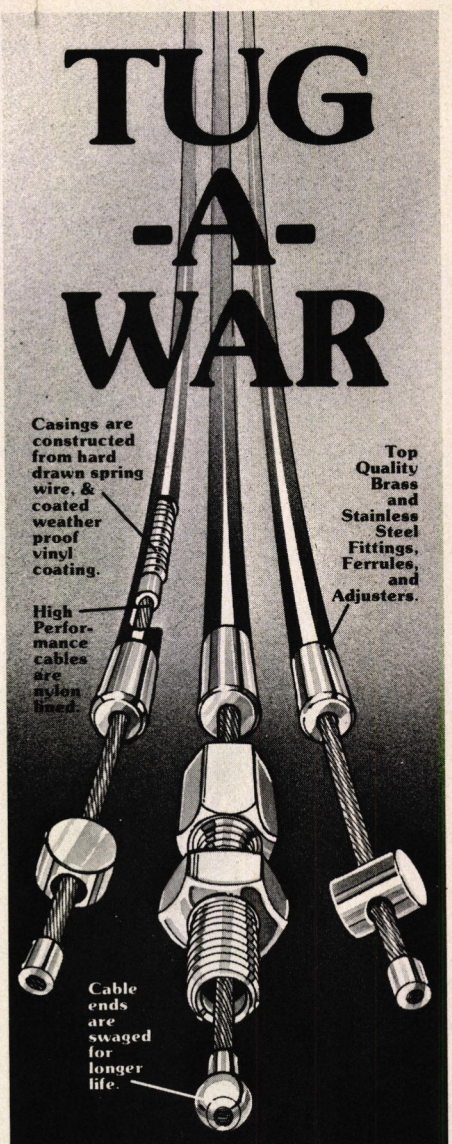
The Racecrafters' fiery pit stop

Hot-footin' it to first place.

Klinzmann, in fact, teamed with Thad Wolff on the Pierres des Roches-modified/Racecrafters-sponsored GPz1000 to win the 500 kilometer race later that week. Wolff and Klinzmann are the top privateer Superbike racers this year. Wolff finished seventh at Daytona, third in a special Superbike race in Imola, and finished seventh in the Riverside AMA Superbike race held prior to the enduro. Klinzmann placed eighth in that race on his "slow" GPz1000. *—Dain Gingerelli*

Continued

TUG -A- WAR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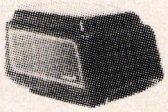

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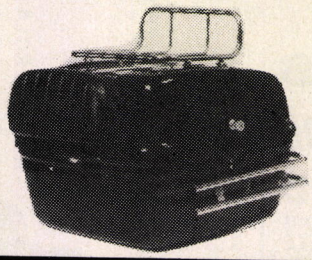

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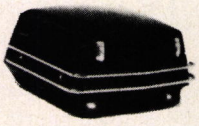

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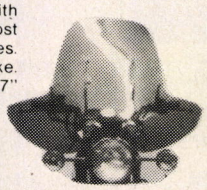

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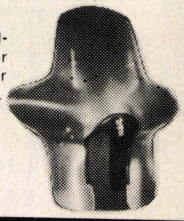

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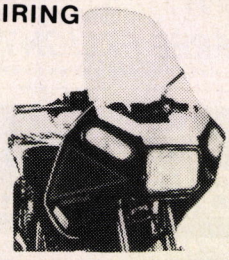

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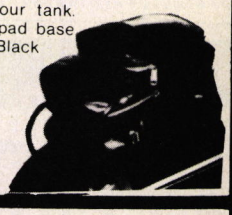

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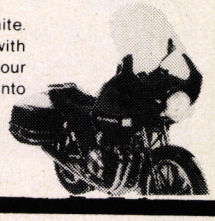

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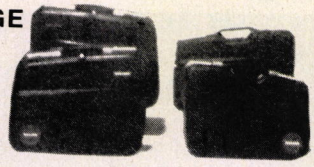

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It's V rated, and DOT approved. The tread pattern on the Sport Elite provides smooth rolling, positive traction, and reduces "squirm". Low profile, wide footprint and stiff sidewalls insure exceptional cornering. A center rib on the Sport Elite front enhances tread life and assures precise braking.

130/90V-17	(510-17)	Rear	**67.99**
120/80V-18	(425-18)	Rear	**62.99**
130/80V	(510-18)	Rear	**69.99**
140/80V-18		Rear	**75.99**
100/90V-19	(325-19)	Front	**56.99**
110-90V-19	(350-19)	Front	**59.99**

DUNLOP TOURING ELITE K291T TUBELESS

It's H rated. H-sustained speeds up to 130 mph. It has belted construction for stability, long mileage, and heavy load carrying capacity.

MT90H-16	(510-16)	Rear	**64.99**
MT90H-17	(510-17)	Rear	**60.99**
MP90H-18	(425-18)	Rear	**56.99**
MM90H-19	(325-19)	Front	**51.99**
MN90H-19	(350-19)	Front	**54.99**

DUNLOP K81 TT100 TUBELESS/TUBED

The most copied tire in the world. Performance is more than skin deep. Featuring the original trigonic (semitriangular) profile, the K81 provides full tread traction surface, even at 45 degree angle leans.

360H-18	**40.99**	360H-19	**43.99**
410H-18	**47.99**	410H-19	**48.99**
425/85H-18	**50.99**		

DUNLOP K181 TUBELESS/REAR

Designed to deliver K81 performance but with more rubber on the road straight up.

120/90V-16	(460-16)	Rear	**51.99**
120/90V-16	(460-16) RWL	Rear	**62.99**
MT90-16	(510-16)	Rear	**58.99**
MT90-16	(510-16) RWL	Rear	**67.99**
130/90V-17	(510-17)	Rear	**56.99**
130/90V-17	(510-17) RWL	Rear	**69.99**
120/80V-18	(425-18)	Rear	**52.99**
120/80V-18	(425-28) RWL	Rear	**64.99**
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130/90V-18	(510-18) RWL	Rear	**72.99**
100/90V-18	(410-18)	Front	**43.99**
100/90V18	(410-18) RWL	Front	**53.99**
90/90V-19	(325-19)	Front	**45.99**
100/90V-19	(410-19)	Front	**56.99**
100/90V-19	(410-19) RWL	Front	**48.99**

DUNLOP K127 TUBELESS REAR

The K127 rear tire is designed for the high performance standards of the big bore superbikes.

460S-16		Rear	**49.99**
130/90H-16	(510-16) RWL	Rear	**63.99**
M130/90-16	(510-16) RWL	Rear	**71.99**
M140/90-16	RWL	Rear	**75.99**
130/90H-17	(510-17)		**65.99**
400H-18			**58.99**
425V-18			**67.99**
130/90V-18	(510-18)		**68.25**

DUNLOP F11 TUBELESS FRONT

A perfect match with the K127 rear, the F11 is compounded for carcass rigidity.

350S-18		Front	**39.99**
M120/90-18	RWL	Front	**60.99**
325H-19		Front	**48.99**
350V-19		Front	**55.99**
110/90H-19	(350-19)	Front	**54.99**
M110/90-19	(350-19) RWL	Front	**60.99**

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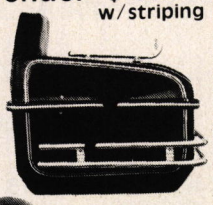

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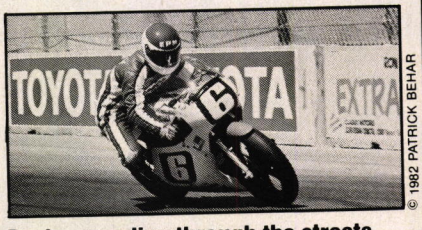
Winners & Losers:

Bikes at the Long Beach Grand Prix

Taking it to the streets.

• In the United States, motorcycle racing is not the Big Time. It may never be. In Europe and Japan, motorcycle racers are national heroes, but here if you ask several men-on-the-street to list the 50 best-known sports figures in America, it's entirely likely the resulting consensus tabulation wouldn't include a single motorcycle racer, probably not even Kenny Roberts. Two-thirds or more of the list would be from baseball, football and basketball. Add some golfers, tennis players, boxers, a couple from hockey, jeez, probably even Bruce Jenner. Car racers? Maybe Mario, AJ, Bobby U. and Richard Petty. That's your list. See? No KR.

With motorcycle racing suffering second-citizen status, there always has been hope for more. For *Recognition*. All



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Busby speeding through the streets

The police never gave him a ticket.

P.T. Barnum wanted was that you spell his name right; motorcycle racers will take anything—and you can spell it any way you want.

So with considerable hope for *Recognition*, the bikers ran in conjunction with the 1982 Long Beach Grand Prix. Correction: Instead of "in conjunction with," make that "in support of." Some 40 AFM riders aboard 250s were allotted a crowded spot in the garage and given a race date on Sunday, before the GP.

Says Rudy Galindo of AFM Pro, the promoter: "We need to get off the enthusiast-kick to bring people to the races . . . we have to get out there to the Joe Blow public and educate him as to what's going on." Long Beach, with 120,000 people there on Sunday, promised that; it probably was the biggest crowd ever to watch a motorcycle race in the United States, and Galindo figures maybe 95 percent of them had never seen a bike race before.

Continued

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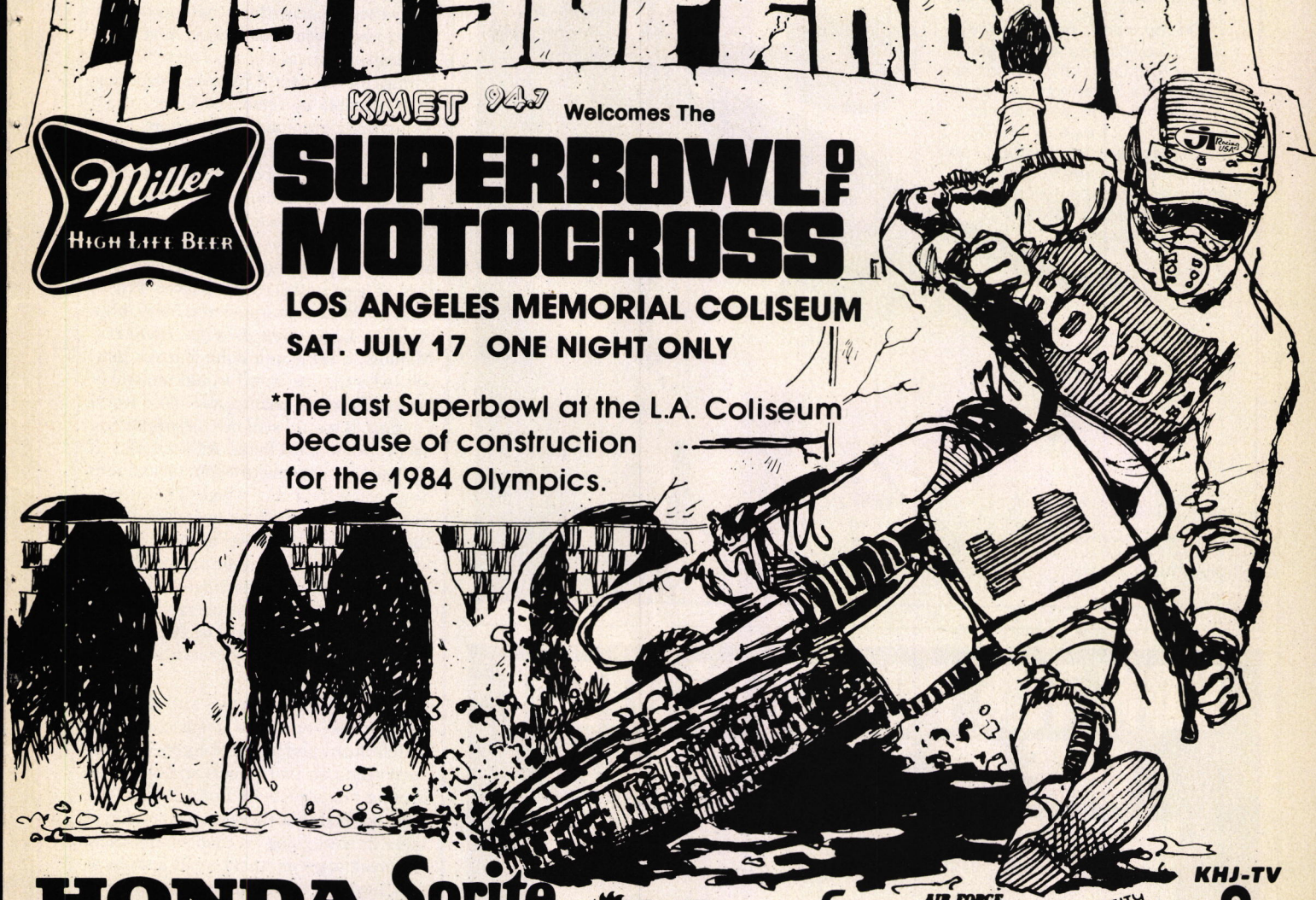

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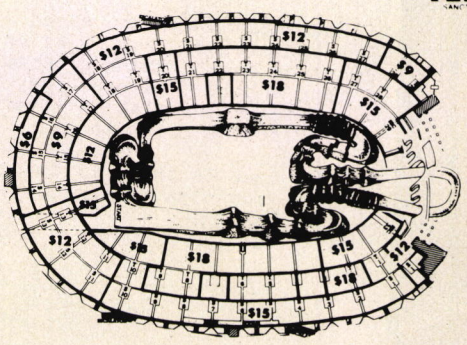

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Four nights ago you saved my new Suzuki 1100 from being stolen. The ignition switch and fork lock let me down. Thank goodness I had you thru my rear wheel. Whatever they used on you only scratched the plastic cover. I am getting another one for the front wheel.

Your lock is the only thing that prevented my bike from disappearing forever. Thanks.

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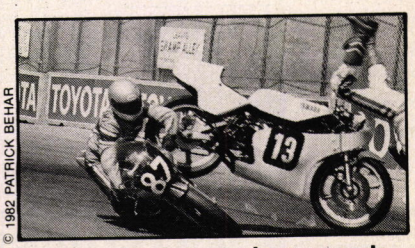
As such, it was great for motorcycle racing. Dave Busby took the win on the strength of a fine, clean ride, threading his way between the concrete barriers and manhole covers. The crowd loved it: "Sheeeit! He's cornerin' with his damned *knee* on the ground!" This was something really exciting, something that most of the crowd never even knew existed; and while it is unlikely droves will show up at Willow Springs for the next AFM event, exposing 120,000 people to a motorcycle race can't do anything but good for the sport.

"Until motorcycle racing has enough big sponsorship behind it, it's always going to play second fiddle to the cars," says Galindo. He's absolutely right about that, of course. In fact, motorcycle racing probably will *always* play second fiddle to the cars, at least in this country. Even if there were a World Championship 500cc bike race at Long Beach with Roberts, Mamola, Sheene and John Surtees himself (who the car crowd would remember best as F1 world champ, *not* 500cc world champ), it would still be the supporting event. Some hard facts: At Long Beach the track is not going to be put up and torn down more than once a year. That means one Sunday annually for racing; and since the cars started it, bring in more money, and the drivers are bigger names, the car race will always be the biggest and only main event. *Any* motorcycle race will play a supporting role. It will be the same at Detroit, and almost certainly at Las Vegas.

Still, when a large—and largely uneducated—audience got a chance to watch Busby and his AFM competitors do their thing on two wheels and one knee around the streets of Long Beach, the folks realized that there was something of more interest going on than simply using the break to get another beer. If just one or two percent of them were interested enough to take in another bike race during the year, that's significant.

That's also good for motorcycle racing. In the United States it may never be the main attraction, but putting on the show before massive crowds at Long Beach will help bring it closer to the major leagues. Most certainly, Kenny Roberts is at least as good at his game as Reggie Jackson is at his. And if Reggie is on that Top 50 list, KR should be, too. *—Don Fuller* •



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LETTERS *Hard thoughts, Sincere hopes and How to get there from here.*

AND THE OTHER SHOE DROPS

I was amused by reader B. Scotty's letter (May '82) regarding his estimate of the resale value of his 1978 XS1100. Reader Scotty either has never traded a bike or has a positive knack for self-delusion. He has overlooked the inexorable laws of depreciation, which apply whether the product is a Harley, a Yamaha or a Cushman moped.

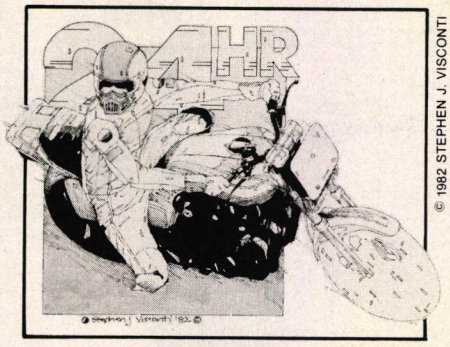
A four-year-old bike, even one with less than a thousand miles on it, will have substantial depreciation. One with 35,000 miles on it will have even more.

I am as loyal to the Yamaha marque as anyone—I'm on Yamaha number-four, an '81 model XS400. But I have absolutely no delusions about depreciation or resale value.

I sincerely hope that brother Scotty doesn't have heart trouble, because when he actually unloads his bike the shock of reality could prove fatal.

John Gregorie
Marietta, GA

B. Scotty's letter is typical of all UJM freaks: bragging on less than 9,000 miles a



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year. Admittedly, that *is* a lot for a UJM, but if they're as great as you claim, Scotty, why don't you ride more? 35,000 miles in four years—I do more than that *each* year. I can only conclude that you have no idea what's good, having never had it.

When you try to define performance, Scotty, which do you use—a second quicker through the quarter or a *day* quicker coast-to-coast? Since you don't ride much, the former obviously is more important to you, and you wisely chose a UJM. But to the *real* biker, the guy who does 25 to 100,000 miles a year, the latter is the most important.

You write about putting *another* 35,000 miles on your bike. Not likely. Most UJMs need major work at around the 50,000 mile mark—but of course that's five or six years of riding for you. $500 or $600 spread out over that length of time doesn't seem so bad. However, having to spend that amount each year is something else again.

A Beemer typically will go 80 to 100,000 miles, get a $175 ring and valve job, then go out and do it again. But of course at the rate that you ride, your *grandson* would be doing the overhaul. 'Nuff said.

Bear
Colonial Beach, VA

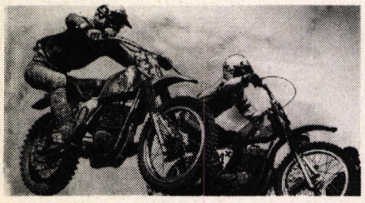
And it would appear the grandson works pretty cheap —ed.

A QUESTION OF TIME

I just finished reading your comparison test of the GPz1100 and the GS1100 (May '82). In the article you mentioned something that I have been concerned with—reliability.

I have just traded my '80 Yamaha 850G for a new, '82 GS1100E. So far I love the bike, and it seems to be every bit as great as you say it is. But I have to wonder if it

Continued



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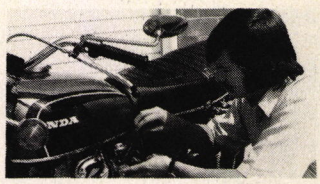

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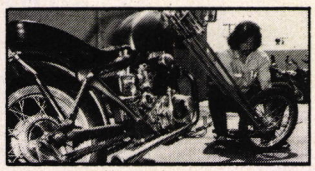

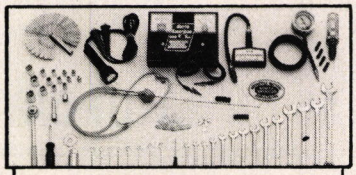

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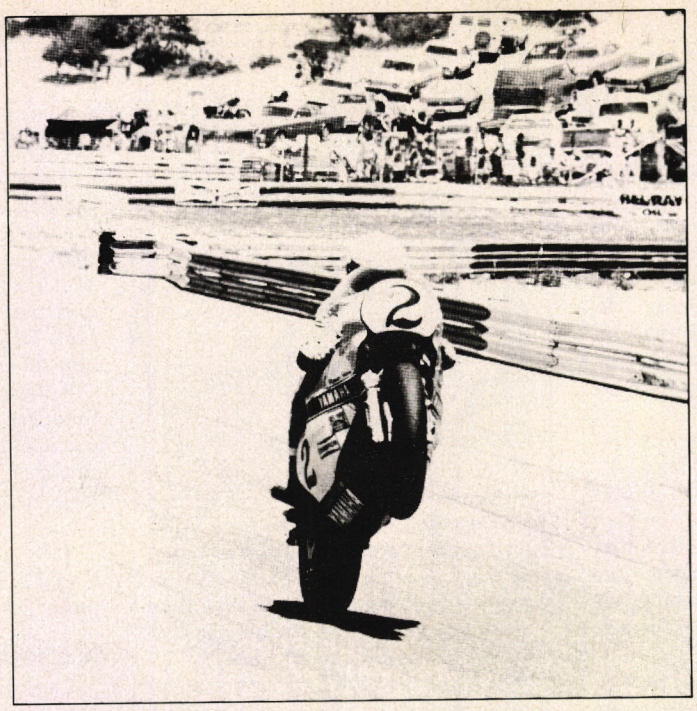

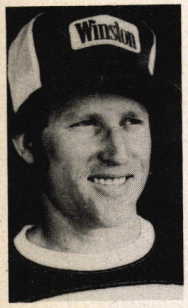

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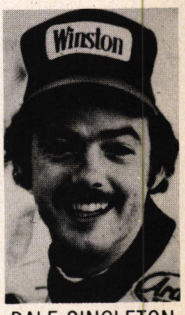

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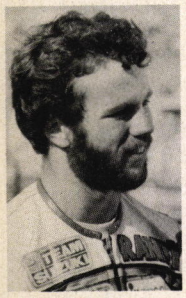

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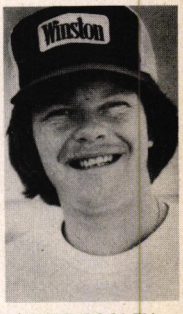

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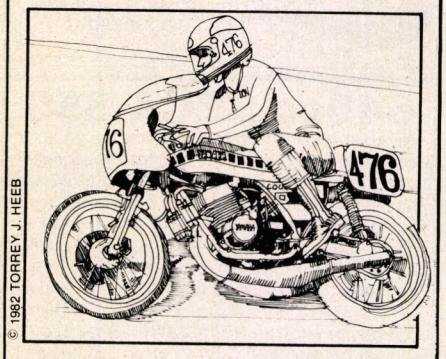
will be as reliable as the Yamahas I've owned in the past.

I certainly hope that it is, but I do know one thing. It's going to be fun finding out.

Larry J. Harris
Nashville, TN

Not if you listen to what Bear has to say —ed.



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I'M SO CONFUSED

Reference: May '82 issue, 250 Motocross comparison test.

"The Honda was always quickest. The RM (Suzuki) closed the gap and moved itself into a solid second place, but we still agreed that the RM felt faster."

This brief passage, of questionable logic to riders and non-riders alike, serves only to confuse the consumer. Secondly, it fails to provide the potential buyer with the important information he/she needs to make a clear, intelligent choice.

This "feelings" vs. "hard numbers" element leads to one simple conclusion: In the interest of journalistic integrity, all other points being equal, next time perhaps you should borrow a stopwatch from someone other than Roger De Coster.

T.L. Thornton
Hawthorne, CA

Feelings don't always agree with hard numbers, Thornton. And by the way, that stopwatch was ours —ed.

TACTICAL MANEUVERS

Regarding your GPz1100 vs. GS1100 comparison, if one were to choose between the two the GS wins everywhere but the racetrack. And on the racetrack, if you wanted to go production racing it seems to me that a GS1000S Katana, with its aerodynamic bodywork and clip-ons, would be a far more logical choice than the GPz.

And getting back to purely street use, there also is the unmentioned—but noted—$400 price difference between the GPz and the GS.

It appears that Suzuki has Kawasaki both out-flanked and out-numbered.

Dan Alexander
Columbia, IL

Thank you, General, for your assessment of the situation —ed.

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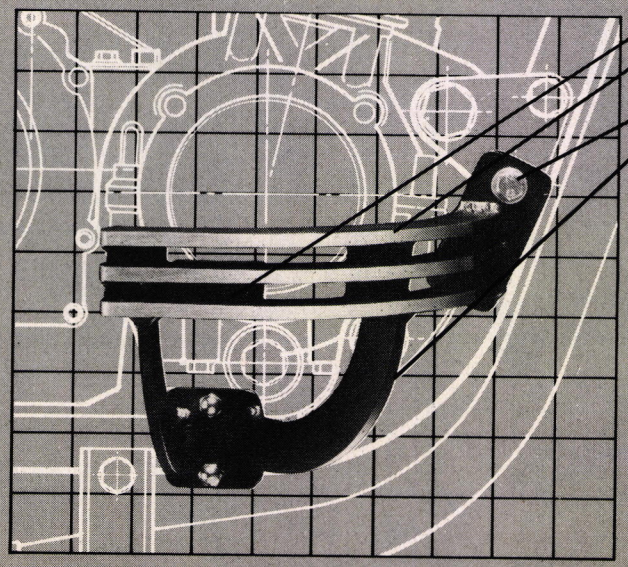

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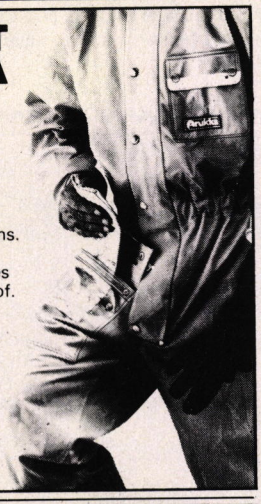

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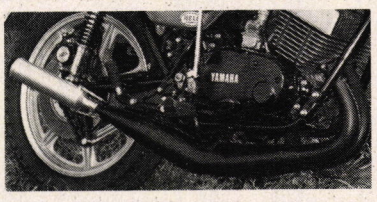

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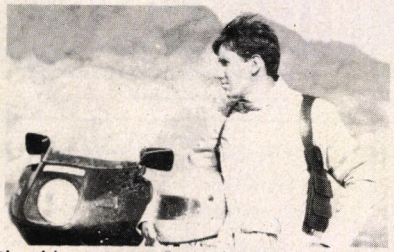
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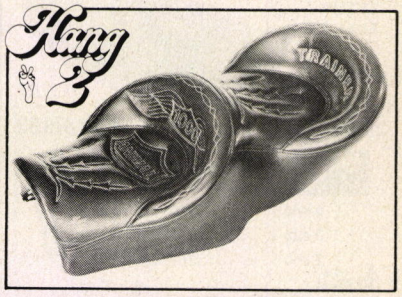
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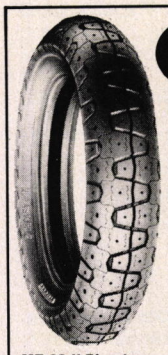
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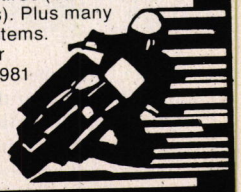

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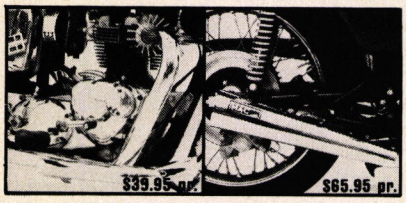

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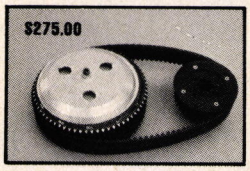

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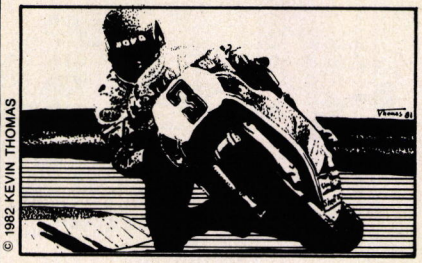

CONCERNING PUMPER-STROKERS

I would like to say a couple of things about your fine magazine. One is that you go into more depth telling the reader what he needs to know, and another is that your report findings tell the readers what the motorcycles *really* are made of.

Now, maybe you could help with my little problem. I'm a fan of two-stroke street bikes and I would like to see you do some articles on them, specifically, the European model Yamaha RD/LC 125, 250, and my favorite, the RD350LC.

The May '82 issue had an interesting little paragraph, but why don't you do some *big* articles on the RD350LC? Also, how would I go about finding one of these bikes to buy?

John Rowe
Manchester, MICH

The Dec. '80 issue of CG has your big article, complete with instructions on how to import the bike –ed.

NO NAMES PLEASE

I don't often become moved enough to write letters, but being referred to as a "goon-eyed geek" really burns. It's obvious that the narrow-minded author of the letter in your March issue, stating that the Virago is a copy of a Harley, is seriously confused.

First of all, to assume that the Virago is a copy of a Harley gives H-D credit for every other V-twin made (Harley-Davidson wasn't the first). I haven't heard anyone accuse Honda's CX500 of being a copy of a Moto Guzzi.

The Virago was designed to be a sporty bike, sure, but it was also designed to take advantage of the many positive attributes of a tandem V-twin That's where the similarity ends. If Yamaha had set out to copy the Harley it would have left out the shaft drive, overhead cams, air suspension, monoshock, improved engine design, halogen headlight, etc.

I prefer to think of the Virago as the machine that the Harley *should* have been; smooth, reliable and roadable. I've had mine since March of '81 and have ridden 15,000 miles, including a cross-country trip, all with no problems at all.

When I bought my Virago I didn't buy a "style," I bought a machine. A well-

Continued

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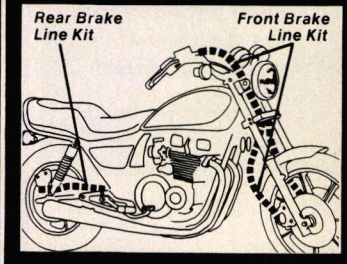

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LETTERS

engineered, well-built machine. I don't expect everyone to ride exactly what I ride, that's why there are so many different bikes. This one, my Virago, is just an old idea with new technology. And I wouldn't trade it for anything less.

Ron Cronah
Manassas, VA

And we wouldn't think of asking you to —ed.

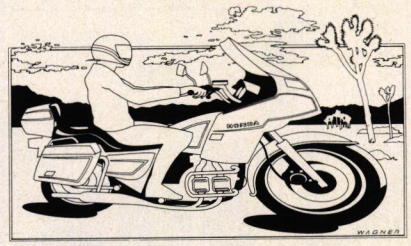
IT PAYS TO READ THE FINE PRINT

I just finished reading the Techspeak on hot-rodding your fuel (April '82). I wish you would have printed that article two years ago. I made the mistake of using an octane booster in a Tracy body—the result, scratch one body. *And* one turbocharger. Nowhere on the can of octane booster did it say anything about the product not staying suspended in gasoline, or caution about what it might do to expensive machinery.

Now my turbocharged Kawasaki has a *metal* fuel tank, with nothing but premium fuel ever going in it. An alcohol-injection system, activated by boost pressure, has solved my detonation problems.

I would caution anyone about using fuel additives without first consulting the manufacturer.

Walter Sarzynski
Auburn, IN



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SECOND THE MOTION

Dear Mr. Sam Kalter of Philadelphia: Sir, I could not have stated it more accurately than you did in the letters column . . . you are an old fart.

Perhaps you ought to look at Steve Thompson's article on BMWness in January issue; or at Techspeak; or "Old Crockery;" or at the six (count 'em) riding tests; or at Motomart; or maybe at your bifocals!

I could go on about how your KZ650 has shim followers (not screw-type adjusters) and points instead of electronic ignition . . . like an impractical, exotic GS1100 Suzuki . . . but I won't. What I will do is propose my favorite toast:

"Here's to internal combustion and wind in the face . . ." —and to old farts in the rear view mirror.

Joel Matthew Young
San Diego, California

ORDER, PLEASE

After reading "Consulting," I felt compelled to finally finish this letter, which I've been putting off for more than a year. Before I read the editorial, I wasn't sure where to send it so that it might be seen by the people who count.

I was a little upset when Kawasaki dropped its KZ750 twin for 1981. However, I did agree that it made little sense for Kawasaki to market both the twin and the then-new four-cylinder KZ750 in the same model year. So I hoped that the twin would reappear in 1981 as a KZ850.

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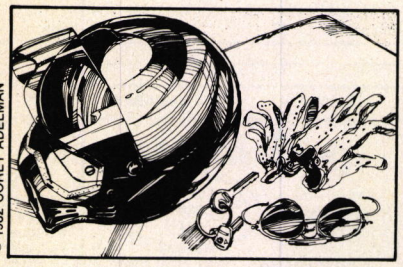
twin would have given Kawasaki another new (and more desireable) model, not to mention filling a displacement gap in the model line. And it sale price could have been kept nearly as low as the 750 twin's.

Anyhow, what I have wanted for some time is a Kawasaki 850 twin, with more widely spaced gear ratios than the 750, and with fifth gear acting like an overdrive. Also, I would like it styled like Kawasaki's beautiful 440 LTD, and belt drive would be nice as well.

Naturally, I don't expect Kawasaki to build this model just for me, but I don't believe that I am the only one who would buy it, either.

Patrick D. Kraus
Whitehall, Michigan

You're probably right. Read on—ed.



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I read your January editorial with great interest. It really would be nice if all motorcycle companies truly cared about what the individual motorcyclist wants in new designs.

I, for one, want a large-displacement (over 750cc) vertical twin employing all the latest twin-cylinder technology—but at the same time it must be easy to work on. A modernized 850 Norton made to look like Yamaha's new 650 Heritage Special would do nicely.

So why don't I just buy the 650 Heritage? Because my XS650 doesn't have enough of what I want, even with a 750cc kit in it. I want gobs and gobs of low-end power, without the passenger-frightening power characteristics and out-of-sight engine redlines of the four-cylinder machines. I've been told I should buy a Sportster, but I don't like Harleys for reasons too numerous to list. I don't want a vibrator, either, so my dream bike must have gear-driver counter-balancers.

While I don't care about top speeds over 100 mph, I *do* care about fuel economy, so if one of the major manufacturers would just produce a large-displacement version of a 400/450 econo-twin .... My second favorite dream bike would be a street version of Yamaha's new XT550 single.

I'm really looking forward to reading what other motorcyclists want in a motorcycle. This subject should make the letters column interesting for quite some time.

Robert H. Duff
Portland, Michigan

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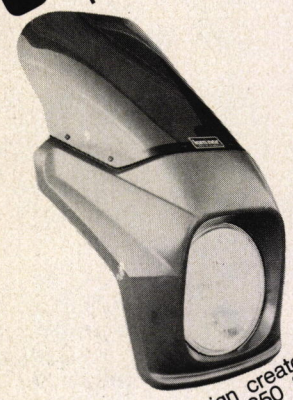

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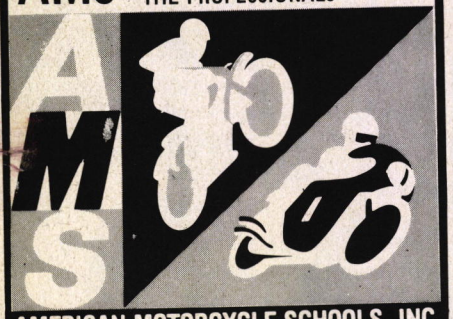

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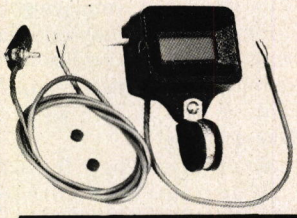

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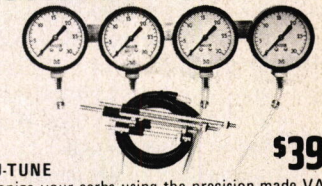

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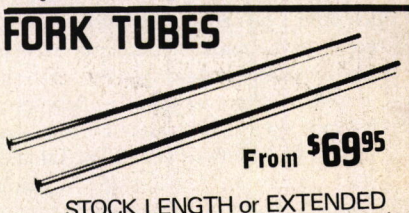

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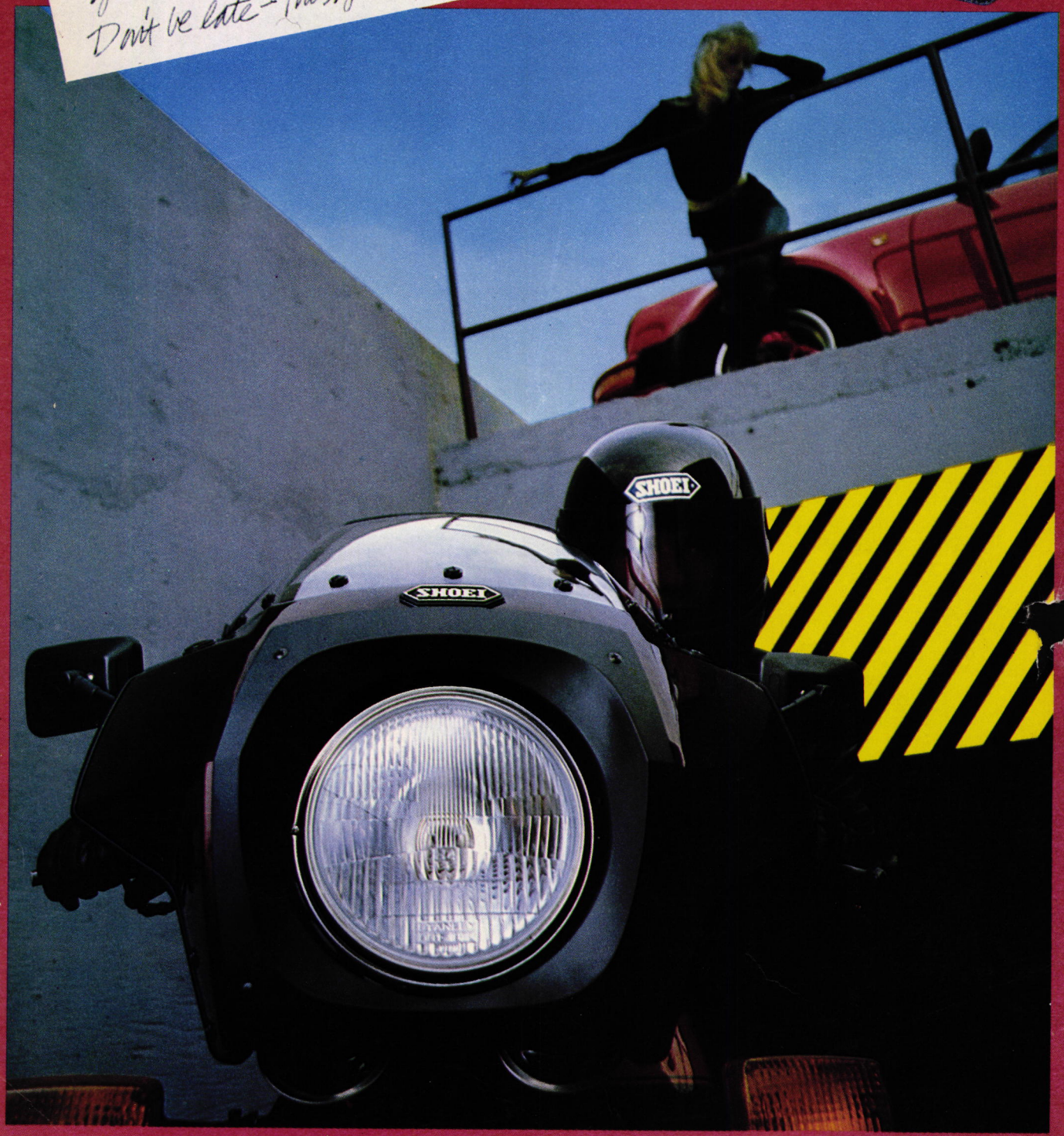

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The shapely sport fairing, for example, provides much more than cosmetic appeal. It helps reduce front-wheel lift by over 30%.

The LS handlebars are low, compact, and help to provide a seating position that "is sporting in a way that Japanese bikes, even with red paint, have not discovered" (Cycle World). (High bars are also available.)

The bike's slender tail, artful as it too appears, was created in one of the most aesthetically indifferent environments known to man: the massive BMW wind tunnel in Ismaning, Germany.

Even the wheels of the LS possess a beauty that goes far deeper than their gleaming enamel. Each rim section is made of a highly rigid aluminum alloy; each hub and spoke assembly is separately cast from a far more elastic aluminum alloy to provide added flexibility. And then everything—hubs, spokes and rims—is cast as a single unit. Culminating in an exceedingly resilient "composite" wheel that not only helps increase handling prowess but decreases unsprung weight.

In the end, the BMW R65LS is one sports bike whose graceful lines do not serve as camouflage for weak engineering. For it is a machine as adept at slicing through the wind and rounding corners as it is at turning heads.

Its price? A lofty $3,790.*

But as a motorcycle columnist of AutoWeek observed, "a bad motorcycle is worthless; a good motorcycle is worth whatever it costs... By that standard, the R65LS is a bargain."

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